Assessed Valuations and Taxes—92 Cities

A recent report on cities of over 100,000 *population*

THE accompanying table, reproduced from "City Finances: 1942 (Volume 3: Statistical Compendium)," a 224-page report published this fall by the Bureau of the Census, shows for the 92 cities having populations of over 100,000 the assessed valuation of property subject to general and selective property taxes, and also the tax levies and tax rates for each of these cities.

In using these figures it should be borne in mind that (except for the per capita and rate figures) all figures are in thousands—000 *omitted*. Thus it is seen, for example, that the assessed valuation of taxable property in these 92 cities aggregated $55,654,462,000 for 1942, and that the taxes levied on this property totaled $1,375,341,000.

The wide variation in per capita tax levies—$15.19 in Los Angeles, for example, as compared with $42.49 in Detroit—cannot, of course, be accounted for wholly by differences in the efficiency of municipal governments or by the quantity and quality of their public services. These variations are also due in part to the much greater dependence of some cities than of others on revenue sources other than property taxes. The variations are chiefly due, however, to the wide diversity of governmental organization of cities, some of which finance by their city levies such functions as schools, parks, and sanitation, which in other cities are financed by levies of independent governmental units. Moreover, in 6 cities, 10 county governments have been wholly or largely merged with that of the city; and 11 cities are outside of designated county areas and "independent" of county government. These 17 cities finance functions provided for ordinarily by county levies in other cities.

Widely varying practice as to relation of assessed values to true values is also evident from this tabulation—Chicago's per capita valuation, for example, being $570 as against $1,629 for Philadelphia.

Other Features of the Statistical Compendium

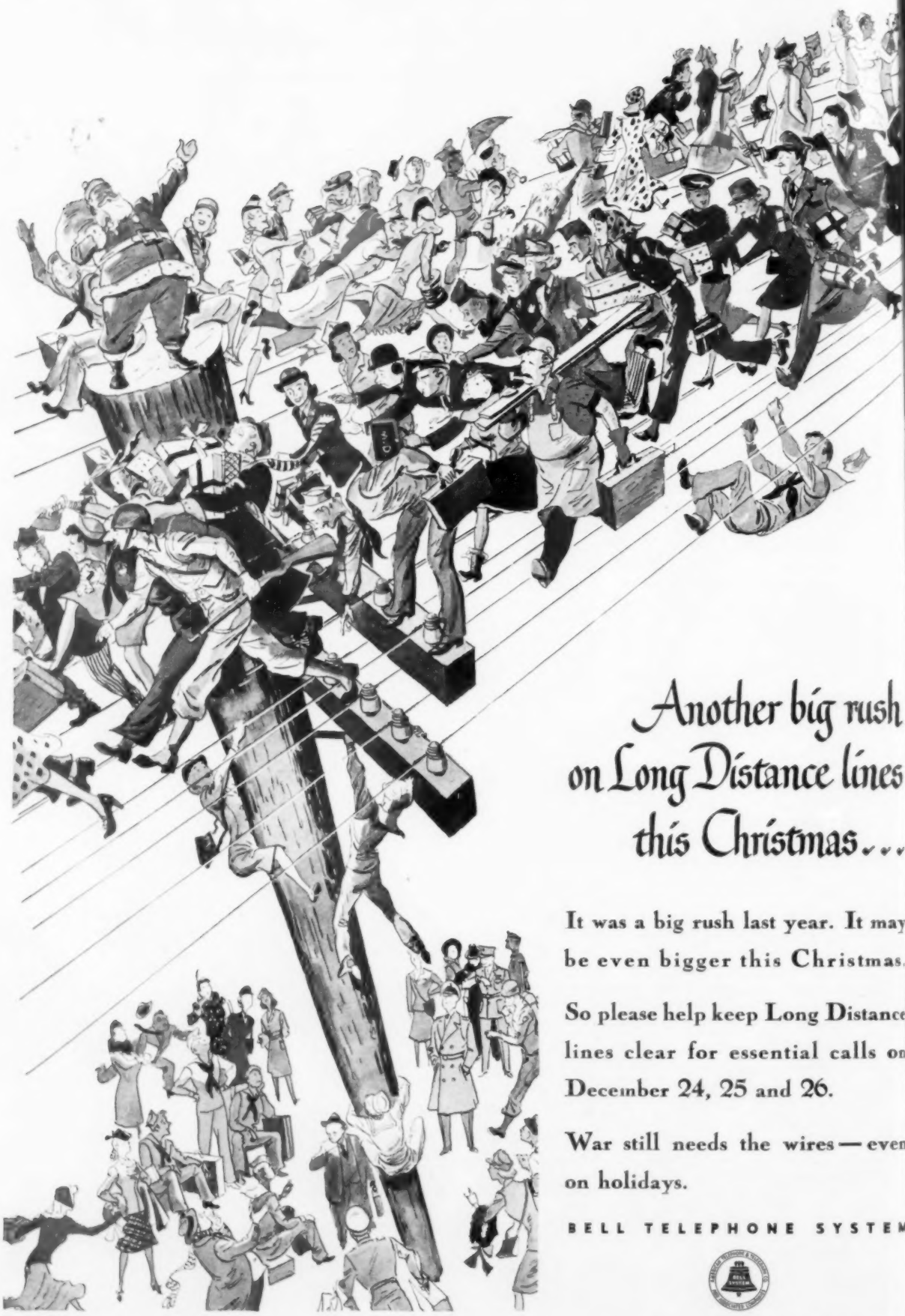
Prepared under the supervision of F. R. Gray, Chief, Governments Division, Bureau of the Census, the above-mentioned report, in addition to covering the cities

(Concluded on page 95)

(In thousands, except for per capita and rate figures)

Pop. rank	CITY	ASSESSED VALUATION SUBJECT TO PROPERTY TAXATION					LEVIED		
		Total	Real	Personal	Mixed	Per capita	Total	Per capita	Rate per $1,000 of assessed valuation
	92-City total	$55,654,462	$46,825,050	$8,090,686	$738,721	$1,465	$1,375,341	$36.20	
	Group I	25,671,106	23,107,971	2,475,017	88,118	1,615	891,638	43.47	
	Group II	10,520,279	8,876,332	1,457,452	186,495	1,629	280,091	40.28	
	Group III	9,931,576	7,087,462	2,593,427	250,704	1,269	215,027	27.47	
	Group IV	9,531,501	7,753,285	1,564,810	213,404	1,225	308,587	35.77	
	GROUP I.—CITIES HAVING POPULATIONS OVER 1,000,000								
2	Chicago	1,955,481	1,350,814	496,549	88,118	570	71,226	20.97	$36.80
4	Detroit	2,525,251	1,894,197	631,054		1,555	68,977	42.49	27.32
5	Los Angeles	1,762,486	1,054,348	698,140		1,172	22,861	15.19	[1]12.97
1	New York	16,501,045	16,501,045			2,187	493,516	64.86	[1]29.80
3	Philadelphia	5,146,843	2,497,569	649,274		1,629	49,058	23.53	[1]14.32
	GROUP II.—CITIES HAVING POPULATIONS OF 500,000 TO 1,000,000								
7	Baltimore	1,371,886	1,082,445	289,443		1,587	34,240	39.96	[1]24.96
9	Boston	1,494,572	1,339,757	154,815		1,939	27,721	74.88	[1]36.62
14	Buffalo	904,437	904,437			1,570	28,263	49.08	31.25
6	Cleveland	1,289,368	921,539	222,259	145,570	1,488	21,558	24.52	16.87
13	Milwaukee	817,872	739,748	78,124		1,398	20,447	34.80	25.00
10	Pittsburgh	1,031,839	1,031,839			1,536	17,222	25.64	[1]16.69
8	St. Louis	1,160,598	881,168	238,525	40,925	1,422	19,271	23.62	[1]16.60
12	San Francisco	1,013,964	708,118	305,851		1,296	18,443	37.45	[1]35.94
11	Washington, D. C.	1,435,743	1,267,288	168,455		2,165	29,126	37.89	17.50
	GROUP III.—CITIES HAVING POPULATIONS OF 250,000 TO 500,000								
28	Atlanta	371,119	245,843	98,649	31,628	1,288	5,951	19.69	[1]16.04
35	Birmingham	180,162	153,136	27,024		675	3,535	12.46	18.50
17	Cincinnati	869,909	749,070	180,839		1,909	9,338	20.50	10.70
26	Columbus	361,166	295,105	43,623	42,442	1,245	3,240	10.39	8.50
31	Dallas	312,393	221,286	91,304		1,061	7,370	25.01	[1]25.57
24	Denver	374,881	264,766	110,114		1,163	6,429	19.94	[1]17.15
21	Houston	368,752	269,080	99,672		959	7,883	18.94	19.75
30	Indianapolis	523,787	375,881	147,906		1,354	9,770	17.48	12.93
30	Jersey City	426,401	431,414	64,987		1,648	17,958	59.83	[1]36.18
19	Kansas City, Mo.	537,994	384,907	116,861	34,226	1,349	8,185	20.50	[1]18.21
25	Louisville	456,591	315,559	122,832		1,369	9,691	30.37	[1]22.21
32	Memphis	302,851	214,344	38,673	49,834	1,054	6,451	22.02	21.30
16	Minneapolis	608,321	190,894	417,427		1,255	19,072	38.74	[1]31.35
18	Newark	719,745	524,653	195,091		1,675	30,701	71.44	[1]42.66
15	New Orleans	429,673	298,109	131,764		889	9,242	18.69	21.50
29	Oakland	279,305	227,653	50,652		921	5,226	17.30	[1]18.78
27	Portland, Oreg.[2]	353,376	198,578	31,215	30,583	882	8,742	22.08	25.60
37	Providence	780,740	402,805	317,835		2,843	13,350	52.70	[1]18.54
23	Rochester	329,369	329,369			1,629	16,870	81.91	[1]51.87
33	St. Paul	313,272	110,047	203,225		1,089	6,738	30.37	[1]27.89
35	San Antonio	214,218	159,254	54,962		844	4,004	15.77	[1]18.69
22	Seattle	247,827	193,302	54,525		675	5,535	18.08	[1]22.33
34	Toledo	450,524	340,504	57,027	52,993	1,996	3,539	12.53	7.86
	GROUP IV.—CITIES HAVING POPULATIONS OF 100,000 TO 250,000								
38	Akron	277,818	198,219	50,674	28,725	1,135	4,164	17.01	14.99
65	Albany	241,565	241,565			1,850	6,530	50.01	26.99
59	Bridgeport	253,337	193,674	57,663		1,708	7,058	47.57	[1]28.08
78	Cambridge	176,879	157,640	19,240		1,585	7,072	63.78	[1]39.98
71	Camden	136,309	110,347	25,962		1,160	4,955	42.18	[1]36.35
63	Canton	152,768	119,557	23,726	9,485	1,409	779	7.19	5.10
91	Charlotte	116,401	88,985	27,418		1,154	1,723	17.08	14.80
66	Chattanooga	112,087	82,349	9,943	19,795	875	2,242	17.49	20.00
40	Dayton	351,671	245,312	55,450	52,908	1,574	2,822	13.87	8.81
55	Des Moines	170,363	109,155	51,281	9,947	1,066	2,811	17.59	[1]16.49
90	Duluth	107,659	57,721	49,938		1,065	2,086	20.64	[1]19.37
81	Elizabeth	156,801	120,658	36,143		1,245	4,695	42.65	[1]34.26
72	Erie	123,696	123,696			1,058	1,525	16.60	14.75
73	Falls River	100,015	85,487	14,528		886	5,675	51.84	[1]36.74
56	Flint	213,658	167,930	45,728		1,410	2,068	13.65	9.68
70	Fort Wayne	159,906	127,585	32,321		1,350	1,025	8.64	6.10
46	Fort Worth	168,774	125,042	43,732		950	3,089	17.39	18.30
76	Gary	155,828	82,013	53,815		1,216	1,443	12.98	[1]10.60
52	Grand Rapids	192,761	155,255	37,506		1,198	1,627	9.60	8.44
51	Hartford	368,437	311,985	56,452		2,216	10,895	65.53	29.57
47	Jacksonville	65,155	55,214	9,921		576	1,329	7.68	[1]20.41
69	Kansas City, Kans.	95,197	58,747	24,565	11,887	784	2,010	16.55	21.11
77	Knoxville	152,232	96,414	19,290	15,488	1,195	3,438	30.31	26.00
53	Long Beach	240,248	200,275	39,973		1,465	2,764	16.70	[1]11.42
88	Lowell	97,286	86,178	11,088		959	4,055	39.99	[1]41.69
48	Miami	192,612	168,931	23,681		1,119	4,668	27.11	[1]24.24
50	Nashville	165,287	117,999	38,691	8,597	987	3,471	20.73	21.00
80	New Bedford	100,868	83,751	17,117		914	4,149	37.80	[1]41.15
54	New Haven	313,670	254,457	59,214		1,953	8,119	50.55	[1]25.88
60	Norfolk	169,059	143,272	25,787		1,171	4,195	29.06	[1]24.82
42	Oklahoma City	117,144	89,786	13,771	14,187	673	1,895	9.27	[1]16.18
39	Omaha	286,447	182,516	103,931		1,290	3,976	17.74	[1]13.88
64	Paterson	170,265	147,669	22,596		1,219	5,497	39.36	32.28
86	Peoria	81,898	58,874	23,515	1,501	779	1,671	15.90	20.40
79	Reading	142,357	142,357			1,288	1,566	14.16	11.00
43	Richmond	319,257	273,054	49,203		1,654	6,378	33.04	[1]19.98
85	Sacramento	129,145	107,790	21,352		1,219	2,982	28.57	[1]18.52
57	Salt Lake City	141,882	93,905	27,226	20,751	948	2,128	14.19	15.00
45	San Diego	167,913	131,305	36,608		924	5,564	17.53	[1]33.13
62	Scranton	99,514	99,514			709	1,970	14.05	[1]19.79
87	Somerville	117,335	107,406	9,929		1,146	4,385	44.92	[1]37.37
69	South Bend	134,080	92,649	41,431		1,324	1,112	10.98	8.29
68	Spokane	74,796	57,882	16,914		613	1,346	11.05	18.00
58	Springfield, Mass.	266,409	234,204	32,205		1,781	8,649	57.83	[1]32.46
41	Syracuse	345,159	345,159			1,678	10,117	49.12	29.31
82	Tacoma	50,058	38,174	11,884		458	991	9.06	19.85
84	Tampa	75,210	64,907	10,303		696	2,116	19.54	[1]28.16
67	Trenton	152,012	124,546	27,606		1,219	5,464	43.82	[1]35.95
62	Tulsa	111,566	88,646	11,215	10,707	788	1,837	12.92	[1]16.47
92	Utica	124,528	124,528			1,238	4,777	45.43	[1]38.67
74	Wichita	149,028	90,289	58,739		1,296	1,678	14.60	[1]11.25
75	Wilmington	163,215	163,215			1,453	2,633	23.31	[1]16.09
44	Worcester	279,404	250,092	29,311		1,643	9,664	56.86	[1]33.67
61	Yonkers	292,296	292,296			2,050	10,198	71.52	[1]34.89
49	Youngstown	274,886	210,091	35,770	29,026	1,655	2,151	12.82	7.84

[1]Average rate.
[2]Because of a change in Portland's fiscal year, no 1942 data are available for the city; information presented is for 1941.



Another big rush on Long Distance lines this Christmas . . .

It was a big rush last year. It may be even bigger this Christmas.

So please help keep Long Distance lines clear for essential calls on December 24, 25 and 26.

War still needs the wires — even on holidays.

BELL TELEPHONE SYSTEM

Our Municipal Notebook

Roomier Buses

COLONEL HARLEY SWIFT of Ebasco Services presented the following memorandum for consideration at the Cincinnati meeting of American Transit Association's advisory committee on motor coaches:

"As you know, I have been studying public transportation from the patron's standpoint for the past two and a half years.

"Riding back and forth, as I have, on the buses and cars, not only in this town but in many others, I find that I have been dropping my dime every day in the fare box, and I have pretty well made up my mind on what I, as a passenger, want—

(1) I want a wider bus.

(2) I want a higher bus.

(3) I want to be able to look out and know where I am.

(4) I want better ventilation.

(5) I want the seat so designed that my shoulder will not get knocked out of place by my fellow passenger.

(6) I want a wider and better seat.

(7) I want a seat that is so spaced that my knees are kept from rubbing on the back of my fellow passenger.

(8) I want better lighting—so that I can read my paper.

(9) As a patron and a student, I want to discourage a lot of gadgets I have thought to be unessential.

(a) I would like to suggest that we could build into our buses the standard, line production terms, we learned from the war.

"As operators, we must remember that we are faced with fewer fares and at the same time higher wages once this emergency is over. We must then look to our bus design to standardize easy-to-maintain units. Units that will weigh first-costs against labor-maintenance costs because it is the spread between the costs and the 'take' which will eventually keep us in business, or put us out of business as an industry."

Easy Flying Will Make Many Fliers

IN the coming air age it is expected that up to 90 percent of the flying may be in privately owned or personal airplanes, just as automobile travel is normally 85 percent of all motor vehicle travel. Practically all of this personal flying has yet to come, and its coming must be largely encouraged by the ready availability of airparks and landing strips.

If any municipal officials have doubts that personal flying will be popular, a reading of "How to Fly a Piper Cub" should help develop a conviction that personal flying will be a normal mode of peoples' travel because it is easy, practical, pleasant, economical. This 32-page booklet includes many full-color illustrations, a complete nomenclature of the airplane and its controls, and pages of interest to pilots and non-flyers alike. One whole section of the booklet is devoted to over 50 step-by-step pictures and descriptions of an actual flying lesson.

Anyone desiring a copy may obtain one from the Piper Aircraft Corporation, Lock Haven, Pa., for the postage-handling cost of ten cents.

Big Towns

THE 412 cities of 25,000 population or more, aggregating 53,000,000 people, own 321 water supplies, 45 electric power systems, and 52 airports, according to "City Finances 1942," just issued by the Bureau of the Census. During that year they spent $2,719,550,000.

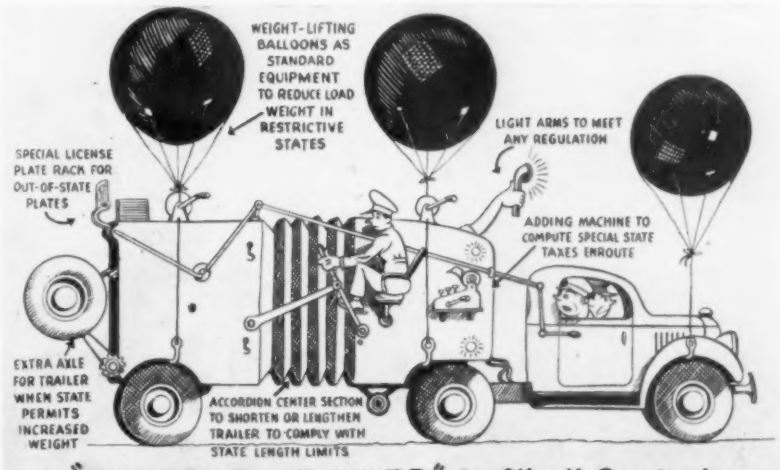
Analysis of these valuable statistics again points to the stability of municipal government. The ups and downs, even between peacetime and war years, are rarely severe. From 1930 to 1940 the average population increase was 5.3 percent. Individually, the cities shrank as much as 15 percent in Hoboken, N. J., and 10 percent in Jackson and Hamtramck, Mich., or they swelled 106 percent as in Corpus Christi, Texas, and Burbank, Calif.

The 92 cities of 100,000 population or more have a combined population of 38,000,000. They spent $2,221,493,000, or 81 percent of the $2,719,550,000 spent by the 412 cities of 25,000 or more and account for half the cost of all municipal government. Where did these big cities get the money—all from the real estate owner? Parking meters produced gross operating revenues of $4,485,000 for 50 cities; municipal transit system, $168,218,000 of which New York's share was $118,631,000; Detroit $24,039,000; Cleveland $12,899,000; Seattle $7,985,000; San Francisco $4,290,000; Tacoma $329,000. Electric light and power systems owned by 12 of these big cities had operating revenues of $82,709,000. Water supply systems earned $207,788,000 gross. A billion and a half in taxes, together with aid received from other governments and miscellaneous receipts, make up the rest of the local government revenues in these 92 cities.

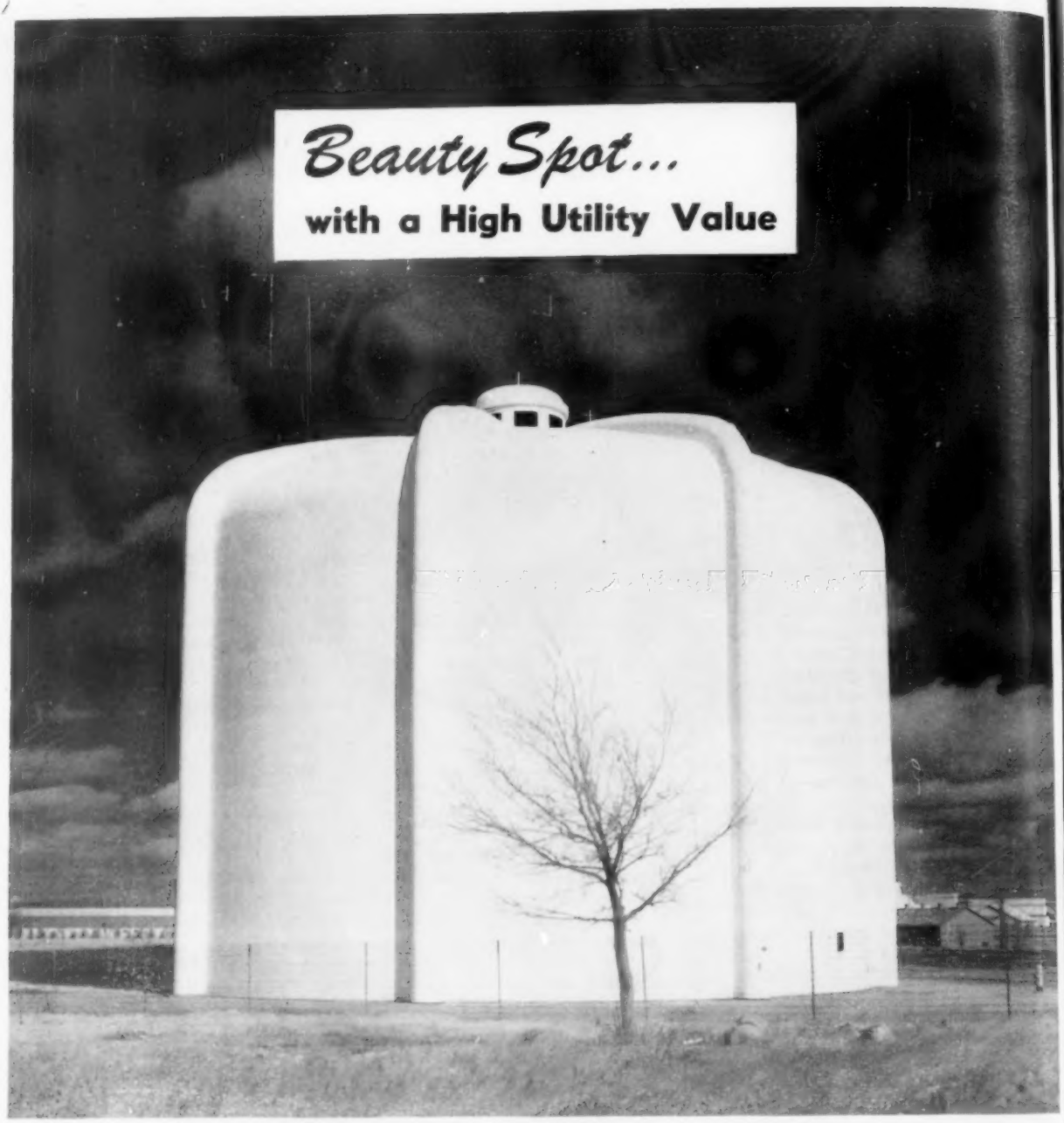
Taxes, of course, are the stability, the credit, of the cities. Where cities furnish services comparable to private services, such as municipal water supply, electric energy, airport service, they make reasonable charges; but in making good their basic purpose to maintain order and raise health standards, the cities must furnish types of service which can hardly be measured by rates. Such tax-paid services are furnished by the fire and police departments and the street and sanitation departments. Municipal government must go on. The marvel is its excellent quality, by and large.

A *Cartoonist's Idea of a Post-War Trailer*

CARTOON BY COURTESY OF THE FRUEHAUF TRAILER CO., DETROIT, MICH.


WEIGHT-LIFTING BALLOONS AS STANDARD EQUIPMENT TO REDUCE LOAD WEIGHT IN RESTRICTIVE STATES
LIGHT ARMS TO MEET ANY REGULATION
SPECIAL LICENSE PLATE RACK FOR OUT-OF-STATE PLATES
ADDING MACHINE TO COMPUTE SPECIAL STATE TAXES ENROUTE
EXTRA AXLE FOR TRAILER WHEN STATE PERMITS INCREASED WEIGHT
ACCORDION CENTER SECTION TO SHORTEN OR LENGTHEN TRAILER TO COMPLY WITH STATE LENGTH LIMITS

The "POSTWAR TRAILER" to fit all State Laws



When the civic leaders of Tulsa, Oklahoma, chose to install the 2,500,000-gal. reservoir shown above, as a vital link in the Tulsa water supply system, they accomplished two things. First, they provided a means of maintaining more uniform water pressure, night and day, for Tulsa's residents and industrial concerns. Secondly, these leaders erected a monument to intelligent, far-sighted planning that will match tomorrow's surroundings as pleasantly as it does today's.

When preparing your water supply system to meet the future requirements of your city, consider *both* utility and beauty. We invite inquiries concerning modern structure like the one shown and also on Horton elevated storage tanks to meet your requirements. Write our nearest office.

CHICAGO BRIDGE & IRON COMPANY

Birmingham 1.....1502 North Fiftieth Street
Houston 1.....5601 Clinton Drive
Tulsa 3.....1525 Hunt Building
New York 6....3308—165 Broadway Building
Cleveland 15.....2236 Guildhall Building

Chicago 4.....2127 McCormick Building
San Francisco 5.....1033 Rialto Building
Philadelphia 3.1616-1700 Walnut St. Building
Havana.....402 Edificio Abreu
Washington 4.....703 Atlantic Bldg.

Plants in BIRMINGHAM, CHICAGO and GREENVILLE, PENNSYLVANIA

Water Works

Lime Solution Controller

HERE is a suggestion on the way to control lime solution easily and accurately. A. A. Bailey, Filtration Engineer, Montebello Filtration Plant, Baltimore, Md., explained this in a paper delivered before the Maryland-Delaware Water and Sewerage Conference.

As many water-works men know, lime solution is difficult to control accurately, especially during low flows because of clogging of the orifice openings. The arrangement Mr. Bailey uses eliminates this difficulty by calling for a simple pinch valve made of a piece of rubber hose, preferably sandblast hose. This has the advantage of being soft and yet rigid enough to hold its shape even under suction.

He has two of these home-made controllers in use at the present time. One controls the solution by pressing a cam against a swinging plate which in turn flattens the hose to secure the desired opening. The arm which operates the cam clamps to a dial to maintain the desired setting. This is graduated and calibrated to show the amount of the opening.

In the second case, control is accomplished by the use of an old 2½-inch valve bonnet and stem welded to the frame which supports the hose. The bar that presses against the hose is fastened to the inner end of the stem so that the stem is free to turn. This gives better control because a finer adjustment can be made with the valve screw than with the cam and lever.

Any clogging in either case can be eliminated easily and quickly by opening the valve wide for a second and then returning it to its original setting. However, clogging is not so troublesome now since the lime does not have the same tendency to build up on the hose that it did on metal parts.

"We have found that we can get just as accurate control with less attention by using this arrangement as we did with the original metal valves," Mr. Bailey stated. "The only critical material necessary is about 10 inches of rubber hose."

Chlorination— Five Years' Experience

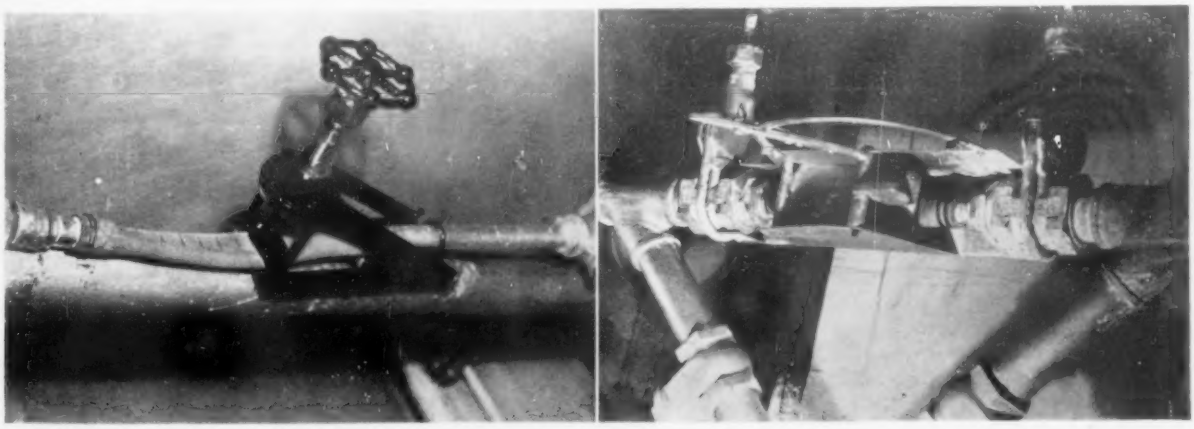
IN a paper delivered at the New England Water Works Association meeting recently, A. E. Griffin, Assistant Director, Technical Service Division of Wallace and Tiernan Co., Inc., reviewed developments in the use of chlorine over a period of five years. They are:

1. Proper control of chlorination will remove free ammonia from water and leave a residual of free available chlorine. This practice is known as break-point chlorination.
2. Free available chlorine will eliminate practically all types of bacteria from water according to the findings of a large number of scientists.
3. Temperature and the pH of the water together with length of exposure to and magnitude of the residuals all have a direct bearing on bactericidal action. The higher the pH values, the longer the time required to destroy bacteria.
4. Of the many new tests perfected to distinguish between chlorine and chloramine residuals, the Laux and Hallinan methods appear to be the most useful. These tests take advantage of the speed of reaction between ortho-tolidine and chlorine. In fact, the Hallinan test is a refinement of the valuable Laux test.
5. An exceptionally good test has been developed to evaluate the extent of false residuals. The extent of false residuals, when due to manganese, iron or nitrites, can be evaluated by means of the Hallinan test.
6. The reactions which take place between chlorine and ammonia have been determined.
7. The reactions between chlorine and ortho-tolidine have been explained.
8. The sterilizing velocity of other agents such as bromine and chlorine dioxide has been studied with the conclusion that neither are as effective as chlorine as a bactericide.
9. The proper conditions for the consistent evaluation of chlorine with ortho-tolidine have been established.
10. New chlorination terms have made an appearance.
11. New uses for chlorine have been found and procedures for old uses have been more carefully worked out. Under this classification we find more plants carrying free chlorine residuals not only at the plant but throughout the distribution system; reservoir chlorination is used to control both bacteria and algae; filter chlorination is used to increase filter runs; it is used also to remove color from water by both its bleaching effect and its ability to aid coagulation.

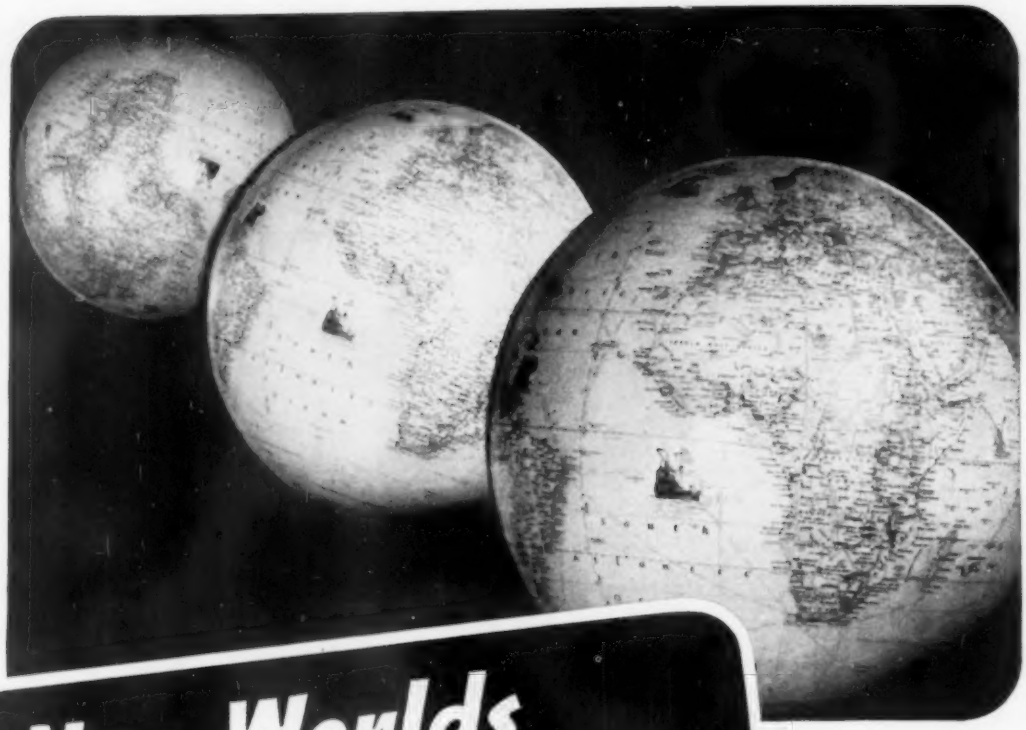
"With the developments of the past five years," Mr. Griffin stated, "we are well on the way to providing a really sterile water."

A Correction

On page 72 of the November issue of THE AMERICAN CITY, the caption stating "One of the three Worthington pumps," should have read, "A Layne pump—"



Two ways to control lime solution easily. The method on the right utilizes a cam pressing on a swinging plate which flattens a hose to secure the proper opening. On the left a bonnet and stem are utilized for the same purpose.



New Worlds TO CONQUER IN 1945

Look out for suddenly issued orders that may quickly end much war goods manufacturing. Look for swift changes to many urgently demand peace-time products. Whenever, or whatever these changes may be, water in abundance will still be an absolute necessity.

Now is the time to check your needs for a thoroughly modern, quality built and ever dependable Layne Well Water System. You will want the best that money can buy; a water system that will last the longest, take less in up keep cost and operate at a new low in economy.

Layne Pumps and Well Water Systems have a reputation that extends around the world. They are more widely used than any other make on the face of the globe. They are serving more cities and industries than all other makes combined. As a pioneer in both well installation and pump building, Layne has created, proven and uses exclusively the greatest number of major efficiency features.

Be prepared for the changes of 1945! Get the facts about Layne Pumps and Well Water Systems now. For new literature, or the counsel of an experienced Layne engineer, address, Layne & Bowler, Inc., General Offices, Memphis, Tennessee.

LAYNE AFFILIATED COMPANIES ARE SO SITUATED AS TO PROVIDE NATION-WIDE SERVICE

Layne-Arkansas Co., Stuttgart, Ark. • Layne-Atlantic Co., Norfolk, Va. Layne-Central Co., Memphis, Tenn. • Layne-Northern Co., Mishawaka, Ind. • Layne-Louisiana Co., Lake Charles, La. • Louisiana Well Co., Monroe, La. • Layne-New York Co., New York City and Pittsburgh, Pa. Wis. • Layne-Ohio Co., Columbus, Ohio • Layne-Texas Co., Houston and Dallas, Texas • Layne-Western Co., Kansas City, Mo., Chicago, Ill., and Omaha, Neb. • Layne-Western Co., of Minnesota, Minneapolis, Minn. • International Water Supply, Ltd., London, Ontario, Canada.

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WELL WATER SYSTEMS
DEEP WELL PUMPS

FOR CITIES, INDUSTRIAL PLANTS, RAILROADS, MINES, AIR CONDITIONING, IRRIGATION PROJECTS

Sewerage and Sewage Treatment

Status of Kitchen-Ground Garbage

GARBAGE collection, according to Harold E. Babbitt, Professor of Sanitary Engineering, University of Illinois, is about in the same status as sewage disposal was 100 years ago. Professor Babbitt made this statement at a recent meeting of the Central States Sewage Works Association at Oshkosh, Wis., in his paper on "Garbage Disposal as a Sewage Problem."

The use of household grinders, Professor Babbitt stated, has been adopted in widely scattered regions, but exact figures on the extent of the practice are not readily available. The convenience of this method is widely affirmed by those who have had experience with it. Opposition to it is centered about the cost of the grinder and the fear of some municipal officials as to the effect of the garbage on the sewer and the sewage treatment plant. This fear, Professor Babbitt stated, is unfounded and is based on lack of information or experience with the process.

Cities reporting experience with the disposal of garbage into sewage include Findlay, Ohio; Flint, Lansing, and Midland, Mich.; Fond du Lac, Wis.; Gary, Indianapolis, and Marion, Ind.; Goshen, N. Y.; Lebanon, Pa.; Rock Island, Ill., and St. Louis, Mo. Professor Babbitt stated that, so far as he knows, no city has adopted the practice and then abandoned it because of dissatisfaction with the results of digesting garbage with sewage sludge.

Michigan Pollution Problem Cleared

THE Detroit Sewage Treatment Plant now receives the sewage of eight southern Oakland County communities and of five southern Macomb County municipalities in addition to the municipal areas previously served.

Both new areas are adjacent to the north limits of Wayne County (Detroit) and both have sustained large increases in population and industrial expansion as a result of the war effort. Each area has its separate connection to the Detroit or Wayne County sewer system, constructed with federal assistance under FWA.

The Oakland County connection was made on May 1 without incident, Earl S. Clark, County Drain Commissioner at Pontiac, acting as agent of the several Oakland County municipalities in dealing with the city of Detroit.

However, service through the Macomb County connection was delayed during the early summer because no agreement could be reached concerning the rate to be paid Macomb County for treating the sewage of East Detroit and Warren Township. Centerline, Roseville, and St. Clair Shores had accepted the rate schedule prepared by William C. Harper, Macomb County Drain Commission, and agent for the county.

As a result, at its May 15 meeting in Lansing, the Stream Control Commission gave public warning of the uncontrolled Macomb County pollution in Lake St. Clair, calling on the State Commissioner of Health as well as local health officers to condemn swimming along the Lake St. Clair shoreline and directing the Attorney General to prepare and institute a pollution abatement suit against the offending governmental units (East Detroit and Warren Township) responsible for the pollution.

The Attorney General was prepared to file suit in behalf of the Commission, enjoining the pollution of Lake St. Clair, when agreement was reached on June 30. The interceptor went into operation the following day and since July 8, all southern Macomb County sewage has been entering the Wayne County and Detroit system for treatment. Bathing beach bans have subsequently been withdrawn under the authority of local health officers.

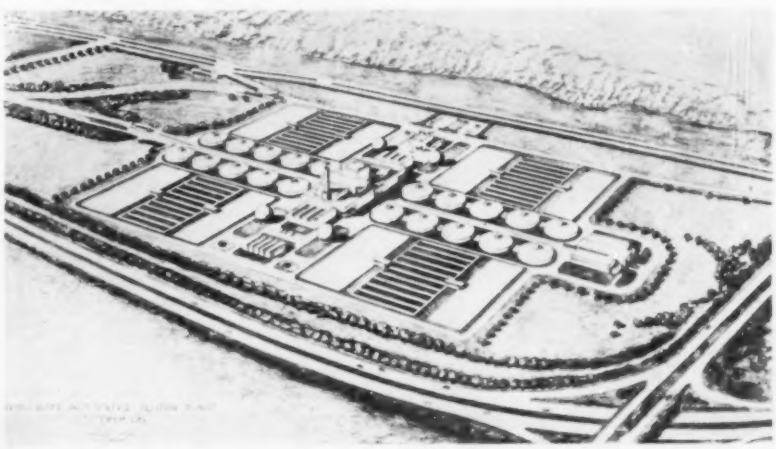
The Oakland and Macomb County arrangements have been consummated under the authority of the county sewage disposal law, Act 342, P.A. 1939, as amended by Act 353, P.A. 1941.

Sewage Treatment Plant for Los Angeles

THE plan submitted for a sewage disposal plant for Los Angeles by the consulting firm of Metcalf and Eddy of Boston, Mass., has the following treatment process:

Sewage will pass through mechanically cleaned screening racks and the screenings removed will be incinerated. The screened sewage will then pass through a grit chamber where sand and grit will settle, be collected, washed, and removed. At this point the sewage will be chlorinated and will pass into four batteries of tanks. Here the process will consist primarily of settling, short-period aeration, and final settling in series. The final chlorinated effluent will pass through a new outfall line to a point a mile from the shore where it will disperse through a multiple outlet about 60 feet below the surface of the water.

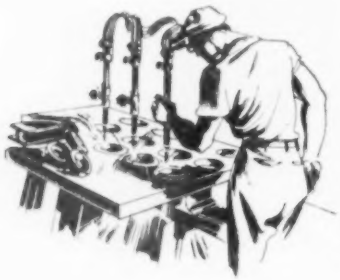
Sludge will be pumped to heated digestion tanks: Two-stage digestion will be afforded and digestor gas collected and stored in gas spheres. Digested sludge will be vacuum filtered and dried for use as a fertilizer. Digester gas will be stored in gas spheres. Gas will be used to operate the blowers and for other purposes.



An architectural sketch of the proposed sewage treatment plant for Los Angeles and environs.

Can Ryerson Steel-Service Help You?

Steel Cut to Close Tolerance. Experienced crews manning high-speed friction saws, giant shears and other metal-working machinery quickly turn out steel—cut, formed or otherwise prepared to your requirements. Steel that is cut to exact specification eliminates scrap—frees man-hours for more production.



Any Shape Expertly Flame Cut. Skilled operators and modern equipment combine with ever-present Ryerson stocks to give accurate flame cutting—prompt delivery. Almost any shape no matter how intricate can be cut by flame. You save the expense of forging or casting and gain the added strength of rolled steel.

Metallurgical Help For Steel Problems. Ryerson engineers and metallurgists are experienced in serving customers in every branch of industry. They have a genius for solving problems pertaining to steel application, heat treating and fabrication and you can depend on them to work with you whenever a difficulty arises.

Speedy Delivery Without An Expediter. Every man and woman in our eleven strategically-located plants knows the meaning of the word *rush!* The Ryerson organization is geared to getting your steel delivered in the shortest possible time. Get in touch with your nearby Ryerson plant when you need steel.

STEEL IN STOCK FOR IMMEDIATE SHIPMENT

BARS

All types and sizes of carbon and alloy bars . . . Allegheny stainless, tool steel . . . hot rolled, cold finished, heat treated.

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Allegheny stainless and more than 17 other types of sheets.

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A wide range of sizes and analyses prepared to your specifications.

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All standard sizes and shapes . . . cut to your order, punched, flame cut, or otherwise prepared.

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Both mechanical and boiler tubing in all standard sizes.

Strip Steel • Shafting • Reinforcing 4-Way Floor Plate • Bolts • Nuts Rivets • Etc.

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DETROIT	1600 E. Euclid Avenue
CLEVELAND	E. 53rd & Lakeside Ave.
CINCINNATI	Front St. & Freeman Ave.
BUFFALO	40 Stanley Street
BOSTON	3rd & Binney Sts., Cambridge
PITTSBURGH	330 Grant Street Plant: Carnegie, Pa.
PHILADELPHIA	5200 Grays Avenue
JERSEY CITY	203 Westside Avenue

RYERSON STEEL-SERVICE

Airports and Aviation

Two Cities Operate One Airport

BENTON HARBOR and St. Joseph, Mich., which recently acted to provide one sewage disposal plant to serve both cities, now have voted to cooperate in the joint ownership and operation of an airport.

City commissions of the two cities adopted ordinances for the joint ownership and operation of Ross Field and have approved the appointment of a Twin City airport board composed of four members from each city, according to the American Municipal Association.

Officials of the two Cities believe the new joint project will result in major developments in the post-war period which will serve both communities. Foremost among future plans for these cities is the development of the lake front.

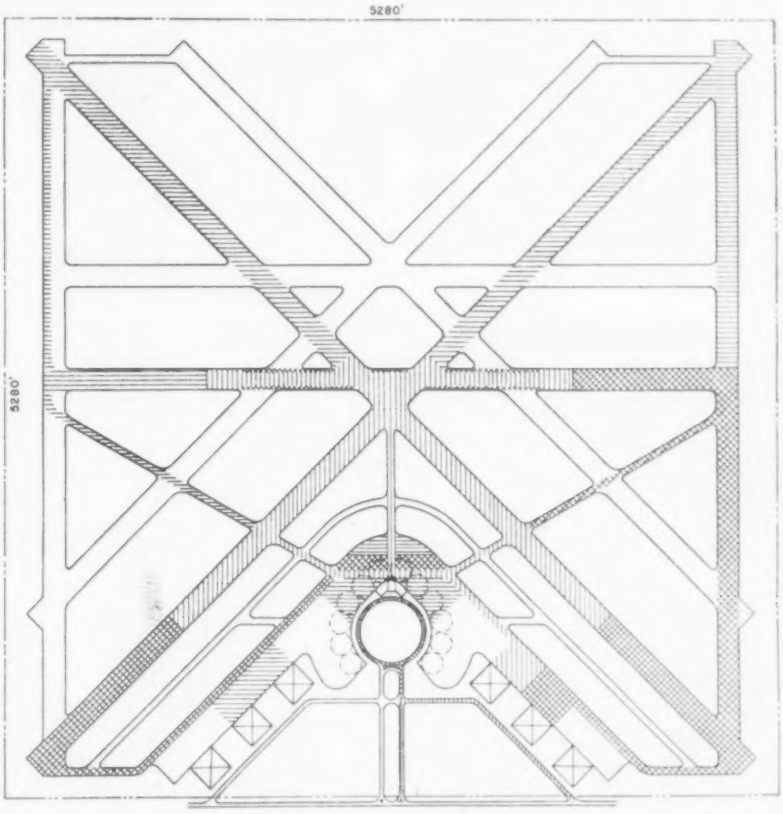
Much of the money spent on the airport has come from manufacturers and other business interests in the area. Benton Harbor made an initial investment of $27,000 in the airport. St. Joseph will make an investment of $16,000, the amount being proportioned according to the assessed valuation of the two cities. Grading work is now in progress for the construction of longer runways.

The State Aeronautical Commission recently advanced $15,000 for needed improvements at the field, and the two cities expect to obtain additional state and federal funds, according to city officials.

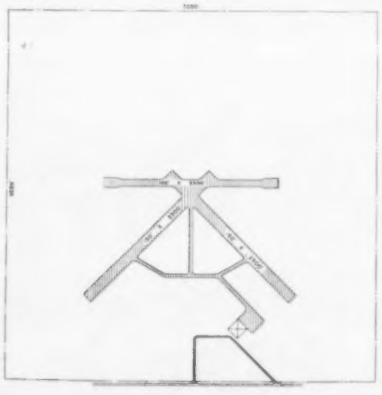
The two cities cooperating in this way feel that they are speeding the day when fruit and vegetables grown in the area will be shipped by plane to all parts of the country, the Association said.

A Master Plan for Stage Development

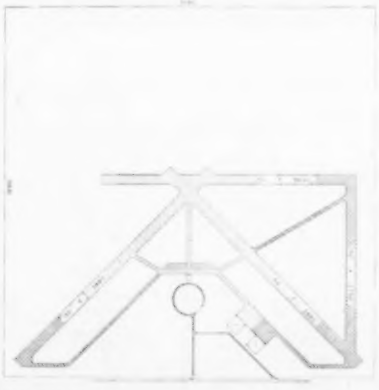
ACCORDING to "Airport Design" a publication of the Civil Aeronautics Administration, a master plan for stage development of an airport should show the development immediately proposed as well as that ultimately planned and should be kept flexible to meet constantly changing conditions. The first stage should include only basic units required, and progressive developments should provide additional facilities as they are needed. The illustrations below planned for a square-mile plot, are from "Airport Design."



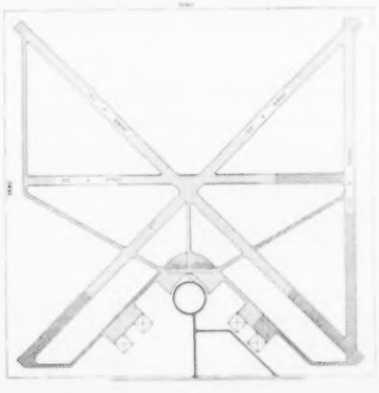
Fourth and final stage in the development of an airport in conformity with a master plan for stage development on a one-mile-square plot. The three earlier stages are shown below.



First stage



Second stage



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Complete information is giv in brochure TR-21A. And fo details on lower-cost wat transportation, send fo Transite Water Pipe Bro chure TR-11A. Johns-Man ville, 22 East 40th Stree New York 16, N. Y.

ENGINEERING DATA

GRAVITY TYPE

Sizes: Class 1— 4" to 36"
Class 2—10" to 36"
Class 3—10" to 36"
Class 4—18" to 36"

PRESSURE TYPE

Sizes: 3" to 36"

Pressure classes:

Class 50— 50 lbs. per sq. in.
Class 100—100 lbs. per sq. in.
Class 150—150 lbs. per sq. in.
Class 200—200 lbs. per sq. in.

Friction Coefficient (Williams & Hazen): C-140

Crushing Strengths:
A.S.T.M. 3-edge bearing test method

Pipe size inches	Lb. per linear ft. Class 1	Class 2	Class 3	Class 4
4	4125	....	....	....
5	3350	....	....	....
6	2880	....	....	....
8	3100	....	....	....
10	2580	3690	4920	....
12	2370	3850	5100	....
14	2200	3920	5150	....
16	2120	4050	5280	....
18	2030	4140	5360	6340
20	2290	4280	5850	7100
24	2340	4550	7050	8600
30	2980	5000	8180	10450
36	3500	5400	9700	12300

Friction Coefficient (Kutter's); n=.010

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TRANSITE
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PIPE
An Asbestos Product

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Refuse Collection and Disposal

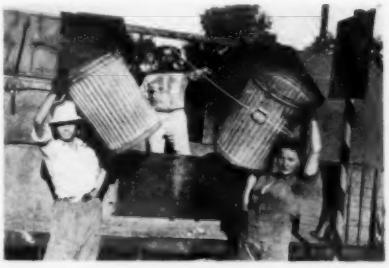
Women Garbage Collectors Successfully Take Over

in a field heretofore reserved for only the burly male

WHEN the garbage collection department of San Antonio, Texas, came to the bottom of its manpower reserves "bucket" and could no longer keep the service operating adequately, it sent out with no small amount of trepidation a call for women to perform this very necessary task. Secretly the city dads doubted the ability of the "weaker sex" to carry on this rather arduous and odorous task (some of the cans weigh as much as 200 pounds). But as L. A. LeLaurin, Superintendent of the Garbage and Sanitation Department, said "Rather than throw up our hands in despair and quit, we decided to give the women a try."

To start, twelve women were hired, and to train them each one was in turn placed with a full crew of men for a period of three days. During these three days she got used to following the truck and to pitching and catching garbage cans. After the three-day training period, she replaced a man on a crew. The present-day refuse collection crew consists of one driver and three handlers—two men and one woman.

Left to right the Sanitation Department's woman power includes: Gertrude Montejano, Mary Gonzales, Catalina Martinez, Hortense Mendez, Josephine Arrendondo, Ruth Irwin, Mary Wiggins, Eloise Hernandez, Emilio Martinez, Rose Haggerton and Catherine Bailie.



Mrs. Katherine Bailie, who has since been promoted to the position of regular driver, is shown here as a member of one of the collection crews.

Hortense Mendez and Mary Wiggins standing in front of one of the department's Elgin Street Sweepers.

Eight of the original twelve are still with the department. One of them, Mrs. Catherine Bailey, is a regular driver and two others are part-time drivers, slated to become full-time drivers as soon as an opening occurs.

Mr. LeLaurin finds women "just as good as any of our men at either handling or driving."

Who said they were the "weaker sex"?

Sanitary Fill Adopted in Sturgeon Bay

ON June 7, 1943, the City of Sturgeon Bay, Wis., began the first regularly scheduled municipal collection and disposal of garbage and refuse. Prior to that time private collectors had been able to gather and dispose of the city's refuse. With a wartime jump in population from 5,439 to an estimated 10,000, however, and the absorption of the private collectors into war industries, an unsanitary condition developed which caused the public to demand relief.

The Common Council, anticipating the need for an adequate refuse collection service, had already made a study of methods used by other cities so that after a thorough study of all available methods the city was ready to act when the citizenry protested. In order to establish immediately a city-wide collection system the existing city-owned trucks were used until more modern equipment could be obtained. Thus, service was started on June 7, 1943.

The Common Council, recognizing that the disposal of all types of refuse on an open dump could never be anything but unsanitary, decided after careful consideration that the only satisfactory solution to the problem lay in utilizing the sanitary fill method of disposal.

The city then acquired a suitable five-acre tract of land and purchased a Drott Bull Clam Shovel. We mounted the shovel on our RD-6 Caterpillar tractor and have since July 13 of this year been using the sanitary fill method of refuse disposal. The only unsatisfactory condition which still persists is that of flies which hitchhike out to the disposal grounds on the open refuse trucks. With the arrival of a Gar Wood Load-Packer body on a cab-over-engine chassis soon due, we anticipate that even this nuisance will be eliminated and that we shall have a collection and disposal service to be proud of.

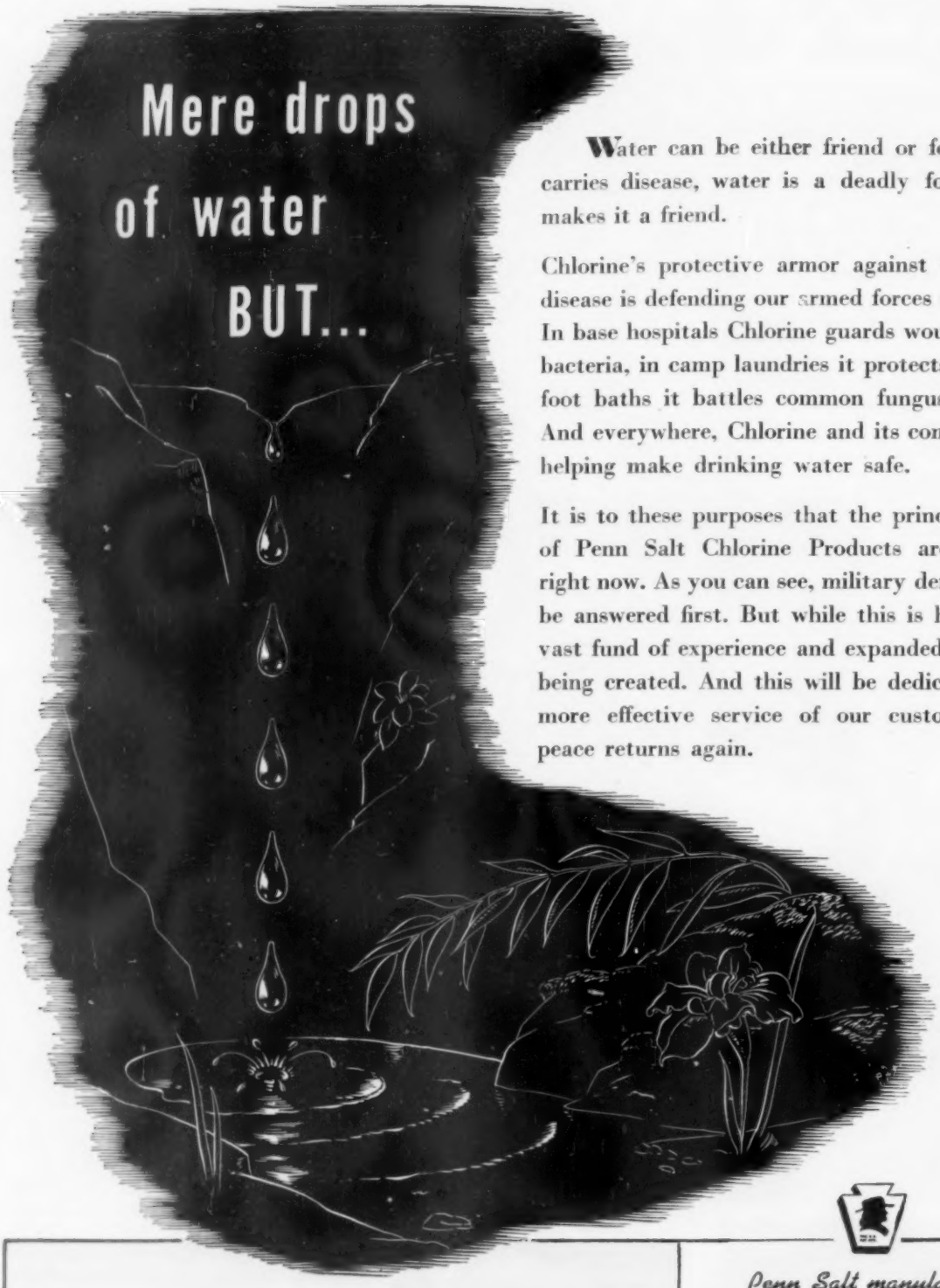
EUGENE ODBERT, JR.
Superintendent of Maintenance and Construction
Sturgeon Bay, Wis.

Sunnyside, Wash. Adopts New Refuse-Sewerage Ordinance

Sunnyside, Wash., has adopted an ordinance which fixes rates and charges for sewage treatment services and refuse collection. The revenue collected under this new ordinance will be used to pay off an $85,000 bond issue which will be sold to finance improvements in both of these services. Under the ordinance every building in the city must be connected with the city-owned sewerage system and must use the city's garbage collection service, according to the International City Manager's Association.

Watch for THE AMERICAN CITY, January 1945, for Baltimore's use of a sanitary fill.

Mere drops of water BUT...



Water can be either friend or foe. When it carries disease, water is a deadly foe. Chlorine makes it a friend.

Chlorine's protective armor against water-borne disease is defending our armed forces everywhere. In base hospitals Chlorine guards wounds against bacteria, in camp laundries it protects clothes, in foot baths it battles common fungus infections. And everywhere, Chlorine and its compounds are helping make drinking water safe.

It is to these purposes that the principal output of Penn Salt Chlorine Products are dedicated right now. As you can see, military demands must be answered first. But while this is happening a vast fund of experience and expanded facilities is being created. And this will be dedicated to the more effective service of our customers when peace returns again.

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LIQUID CHLORINE

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Caustic Soda and other products

*Trade-Mark Reg. U. S. Pat. Off.

Twenty Motorcycles Patrol Minneapolis

MINNEAPOLIS traffic is handled by policemen headed by a captain, assisted by a sergeant over the foot traffic men and two sergeants in charge of the motorized patrol.

On accidents we have two investigation cars (one an auxiliary) with two men on each shift. Two analysts study all accident reports and complaints such as hit-and-run accidents.

One patrolman handles taxicab licensing and inspection, and presents all traffic cases in court. He is assisted by a clerk who looks after the warrant file and traces individuals for whom warrants have been issued. Two patrolmen in plain clothes serve warrants on delinquent violators. There are 19 foot traffic men on fixed posts in the loop area.

An officer on a 3-wheel motorcycle checks overtime parking from 9 A.M. to 5 P.M. outside the metered zone. Three 2-men meter cars check our Dual parking meters, one car from 8 A.M. to 4 P.M. and two cars from 10 A.M. to 6 P.M.

Twenty motorcycle officers — one per 25,000 of our population—work in two shifts of 7 A.M. to 3 P.M., and 4 P.M. to 12 Midnight on Mondays, Tuesdays, Wednesdays and Thursdays, and on Fridays 6 P.M. to 2 A.M., and Saturdays 7 P.M. to 3 A.M. Three of this crew work Sundays from 2 to 10 P.M. We have used Harley-Davidson motorcycles for 10 years. On rainy days and in winter, our motorcycle men work in radio cars.

A. A. NEITZEL
Captain of Traffic
Minneapolis, Minn.

A squad of 20 motorcycle officers on Harley-Davidson motorcycles, or one motorcycle for every 25,000 of the population of Minneapolis, patrols city streets. At left, Officer Robert J. Bullock and at right, Sergeant Clair Tripp who is in charge of the entire unit.

Radio for Water Department

A SMALL quantity of two-way mobile radio transmitting and receiving equipment has been made available recently for installation by electric, gas, water and communication utilities. We are therefore in a position now to act favorably on applications for such equipment, up to the limit of the quantity assigned, where there is an important need for the equipment. An applicant must demonstrate that the radio installation will make possible substantial savings of manhours and truck time and travel, substantial improvement in system operation, or substantial increase in reliability of local service to consumers.

Applications for the necessary licenses to operate two-way radio equipment should be filed with the Federal Communications Commission concurrently with filing applications with the War Production Board for preference ratings. Applications to WPB will not be approved until after FCC has assured us that licenses for the installation will be approved.

EDWARD FALCK, Director
Office of War Utilities, WPB
Washington, D. C.

New Fire Apparatus Needed Now, Says Board

THE imminent danger of fires from bombing is past, but the need for new apparatus in the fire department of cities and towns is just as great now as during that period. It is the fire apparatus of the regularly organized fire departments which must be depended on to prevent destruction to the industries still vital to the winning of the war. It is this apparatus which must be used to save the lives of people crowded into hotels, apartments, tenements and houses, and those in industries working under less than the normal safe conditions.

Even before the present emergency it was well recognized that much of the fire apparatus—the pumpers and ladder trucks—was becoming obsolete. It was built before experience could eliminate undesirable features of design or material. It was becoming more difficult and more expensive to maintain it. And, of even greater importance, few cities had enough reserve apparatus.

Restrictions on the manufacture and sale of modern fire apparatus have been materially reduced. Today is the time to take action. This year's budget should include a liberal allowance for pumpers and aerial ladder trucks, for hose, for gas masks, salvage covers, modern spray nozzles, and the many other pieces of equipment which a modern department needs. Thought should be given also to adding to and modernizing the fire-alarm system. Do not delay and do not consider this only in connection with post-war plans.

For Annual Index to Contents of THE AMERICAN CITY for 1944 see the back pages of this issue.

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It's up to Us in the Highway Industry to help ward off a Breakdown of our Peacetime Economy

MR. STREET OFFICIAL . . Is your present equipment in condition? Could you put it to work . . . NOW? Have you talked to your dealer about additional units?

Are your plans ready for bids? Can you start the ball rolling in your community without a moment's delay? YOU are the *key man!*

AS YOUR MANUFACTURER . . . As one of your suppliers of construction machinery, we are happy to say we will have a wider and better line of units than ever before. Our plans for peacetime expansion have been made. As rapidly as the fortunes of war permit, you will get those powerful, fast-moving 2-cycle Diesel tractors with bulldozers and scrapers . . . motor graders, power units and other necessary tools — proved and improved by the rigors of war. But, as you would want it, until the war is unconditionally won in every theater, Allis-Chalmers will produce every machine possible to attain that end. Our policy is to "Work For Victory . . . and Plan For Peace!"

ALLIS-CHALMERS

TRACTOR DIVISION — MILWAUKEE 1, U. S. A.

Stop—Check and Mail

Please check over the above list of interesting catalogs obtainable free of charge and either write direct to the manufacturers for their literature, or, if you prefer, put a circle around the identifying numbers below to indicate the catalogs you want, mail this coupon to The American City Magazine, 470 Fourth Ave., New York 16, and we will see that catalogs are sent to you without expense or obligation on your part.

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Name ---------- **Position** ----------

Address ----------

Three Treatment Principles Combined

497. Water treatment officials will be interested in the new bulletin No. 9041 of The Dorr Co., 570 Lexington Ave., New York 22, N. Y., on the Dorrco Hydro-Treator. This is a self-contained water treatment unit combining Flocculation, Thickening, and Clarification in one unit. These separate functions are performed in sequence in three separate zones extending from the bottom to the top. This unit furnishes the following treatment processes: Lime and lime soda softening, and the removal of turbidity, color, algae, silica, iron and other substances. Several pages of graphs, tables, and formulas will be of interest to water works operators.

Joint Compound for Water Mains

498. Water Works Superintendents will find of interest the new booklet being offered by Northrop & Co., Inc., 50 Church St., New York 7, N. Y., on Bond-O, a joint compound for cast iron bell and spigot water mains. This booklet points out that Bond-O is uniform, makes tight joints, is self-caulking and flexible. Instructions for using the product are given as well as details on testing water mains jointed with it. Descriptive data on Bond-O wood furnaces and oil-burning furnaces are given.

Liquid Level Control

499. The Hancock Level Control is the subject of a new booklet being offered by the Hancock Valve Division, Manning Maxwell & Moore, Inc., Bridgeport 2, Conn. Diagrams show typical installations of this equipment for indicating, maintaining and controlling liquid levels. A discussion shows how it operates, and lists its outstanding features which include only one moving part in the liquid chamber; the absence of levers, linkages, bellows, stuffing boxes or wearing parts; separation of the valving or controlled mechanism from the float; and the fact that it is not affected by normal turbulence of liquid.

Valves to Reduce and Regulate Water Pressure

500. Water works men interested in providing uniform and unvarying pressures in their lines regardless of wide fluctuations of the inlet pressures may receive literature from the Clayton Mfg. Co., Alhambra, Calif., about its water pressure reducing valves. Information is given describing the principle of operation, construction details, and typical installations.

Tools for Pipe Cleaning

501. If you have been contemplating the cleaning of pipelines you will want data from the Flexible Underground Pipe-Cleaning Co., 9059 Venice Blvd., Los Angeles 34, Calif., on its line of Flexible pipe cleaning tools. The company will show you how adequately these tools will do your job.

Insure Water Delivery from Hydrants

502. If what you want from water hydrants is quick water, proper shut off without water hammer, correct drainage, and easy inspection and serving, the Ludlow hydrant incorporates these features. Full information is obtainable from the Ludlow Valve Mfg. Co., Inc., Troy, N. Y., giving further details.

Municipal Radio

503. Information about frequencies to be made available for municipal-county-state radio systems for police, fire, utility and private works may be had from Dr. D. E. Noble, Research Division, Galvin Mfg. Co., Chicago, Ill.

Pave Roads with Asphalt

504. Street, highway, and airport officials with paving problems can receive valuable information from engineers of The Texas Co., Asphalt Sales Dept., 135 E. 42nd St., New York 17, N. Y. These asphalt specialists will give you data on the wearing quality and upkeep cost of Texaco Asphaltic Concrete Paving.

Deep Wells for Water Supply

505. Is your community in need of more water? New literature may be obtained from Layne & Bowler, Inc., Memphis 8, Tenn., giving you complete details on its well water systems for use in extending existing water supplies, as well as data about its pumps.

Steel of Every Kind

506. A stock list is available from Joseph T. Ryerson & Son, Inc., 16th and Rockwell Sts., Chicago 80, Ill., that will be helpful to users of steel products. The company points to prompt delivery of bars, plates, tubing, structurals, or whatever your steel requirements may be.

Motor Graders that Stand Up

507. If plans in your community include extensive street and road building, motor graders will be an important part of this new construction. J. D. Adams Co., Indianapolis 6, Ind., will send you literature giving some pertinent facts about its motor graders. Details include construction data, operating costs and the facts concerning their ability to stand up under hard wear without the need of excessive repairs. These graders are adaptable to a wide variety of work and have strength, power and traction.

Tractor Loader Fills Many Jobs

508. Details are available to public works officials from Maine Steel, Inc., South Portland, Maine, about the Sargent Overhead. This tractor loader handles all materials and may be used on either level or sloping ground. It may be used as a one-man snow loader, a bulldozer, a crane, and a crawler tractor for hauling and snow plowing.

Vehicle Actuated Traffic Signs

509. Traffic systems making use of vehicle actuated equipment operate in response to impulses received directly from the traffic, through detectors installed in the pavement near intersections. Bulletin No. 252, published by the Eagle Signal Corp., Moline, Ill., illustrates its line of vehicle actuated controller equipment with a brief description of operating characteristics.

Pumper for Fog Fire Fighting

510. Modern fire fighting methods have produced the use of fog or finely atomized water to smother flames and protect the firemen. A newer method is to use a pressure of 600 pounds at the nozzle. The John Bean Mfg. Co., Food Machinery Corp., 701 Hazel St., Lansing 4, Mich., will send you detailed information on the FMC High Pressure Fog Fire Fighter built to produce the necessary pump pressure.

Hypochlorinator to Safeguard Water Supplies

511. Literature is available from "Proportioneers, Inc.", 99 Codding St., Providence 1, R. I., of interest to water works men giving operational details on its Heavy-Duty Midget Chlor-O-Feeder for the sterilization of small water supplies. The use of this equipment for hypochlorination of water supplies is illustrated and discussed.

(Continued on page 20)

Check These Columns—and Use Coupon on Page 19

(Continued from page 19)

Equipment to Aid Law Enforcement

554. Literature on a complete line of equipment used by municipal law-enforcement agencies is being offered by Federal Laboratories, Inc., P. O. Box 268, Pittsburgh 30, Pa. Equipment includes tear gas guns and projectiles, gas masks, fingerprints, road flares, armored vests and shields, revolvers, H & R Reising sub-machine guns, grenades, handcuffs and police clubs, for use in quelling riots and mob disturbances and in dislodging barricaded criminals.

Removal of Iron from Water

512. Do residents of your community protest the presence of iron in the water you supply them? The Refinite Corp., 109 Refinite Bldg., Omaha 8, Neb., will send you details about its Pressure, Aeration and Filtration method of iron removal. Data shows that pressure aeration oxidizes and precipitates the iron and removes most of it, while the filtration completely removes the remainder, giving you a clear effluent.

Machine to Produce Smooth Road Mats

513. Catalog 879, published by Barber-Greene, Aurora, Ill., gives valuable information on its Tamping-Leveling Finisher used by many cities for compacting material into place on streets as it is being laid and providing a level smooth surface without forms. The catalog contains data on the important features of the machine, construction and principles of operation, and the types of work it performs.

Hydrants Suited to Climate

514. A booklet called "Hydrants by Greenberg" may be obtained from M. Greenberg's Sons, 765 Folsom St., San Francisco 7, Calif. This gives constructional details, specifications, and sectional views of the California type fire hydrant for warm climates, with its individual integrally constructed globe type valves for all outlets. Also included is the "Frost-Proof", a base valve hydrant for use in climates where freezing temperatures are encountered.

Use Sewage Sludge Gas for Power

515. If you are not making use of sewage sludge gas, generated in your plant, you may receive valuable data from Worthington Pump and Machinery Corp., Harrison, N. J., about its line of sewage sludge gas engines. Used for either large or small installations they provide continuous full load power, and may be used in a number of different kinds of municipal services, especially for general-purpose electric power or for driving centrifugal sewage pumps.

Diesels to Save Power

516. Municipal power plant operators interested in effecting power economies in their plants may secure information from Superior Engines Division of The National Supply Co., Pittsburgh, Pa., on its diesels. Stationary models are from 31 to 1200 hp, and generator sets, 12½ to 770 kw.

Water Works and Sewage Disposal Equipment

517. Designed to give water and sewage works superintendents, as well as city engineers, as much information as possible about its line of water works, filter, and sewage plant equipment, the M & H Valve and Fittings Co., Anniston, Ala., offers its Catalog 34. Details and specifications are given on its gate valves, tapping valves and shelves, valve boxes, floor stands, check valves, fire hydrants and other equipment.

Treated Abrasives for Skidproofing Icy Roads

518. A 28-page booklet entitled "Highway Ice Control, Methods, Materials and Equipment" may be obtained from the Solvay Sales Corp., Dept. 12, 40 Rector St., New York 6, N. Y. This will interest engineers in charge of winter maintenance of highways for it gives facts, figures and information on ice control. Some of the topics covered include methods of skidproofing, Solvay calcium chloride treated abrasives vs. untreated abrasives, how to use Solvay calcium chloride for skidproofing icy pavements, types of covers for stock piles, types of spreading equipment, and ice treatment for special locations.

Restore Pipeline Carrying Capacity

519. Reconditioning of pipelines to restore carrying capacity in your municipal water system may be accomplished through the Centriline Process. The Centriline Corp., 140 Cedar St., New York 6, N. Y., will send you data on this process which consists of first cleaning the main and then applying by centrifugal force a dense cement lining to check tuberculation and corrosion. Any pipeline 30 inches or more in diameter wherever it is situated may be Centrilined.

Fire Apparatus

520. Have you adequate fire apparatus for your city's needs? If you are planning any replacements or additional fire fighting equipment Mack Mfg. Corp., Fire Engine Division, Empire State Bldg., New York 1, N. Y., will send you details on Mack fire apparatus to suit your community's needs.

Automatic Parking Meters

521. Since post-war parking will pose big problems for cities you may be considering parking meters. The meter manufactured by The Dual Parking Meter Co., Harter Bank Bldg., Canton 5, Ohio, is an automatic one. The company will give you details on its construction, and performance record, as well as the free assistance of its engineers to help you study your parking problems and make recommendations for their solutions.

Sewage Treatment Equipment

522. Sewage treatment officials will be interested in up-to-date literature being offered by the Pacific Flush-Tank Co., 4241 Ravenswood Ave., Chicago, Ill. Write for the latest booklet on P.F.T. floating covers, rotary distributors, nozzles for sprinkling filter beds, tray clarifiers, flame traps, sewer flush-tank siphons and sand bed dosing control, twin tank controls, sludge pumps, flush-tank siphons, automatic feeds for contact beds and sewer jointing material.

Development of Well Water Supplies

523. A booklet is available from the Kelly Well Co., Inc., Grand Island, Neb., describing its method of developing well supplies. This brochure contains a detailed discussion of its procedure for locating and developing water supplies in sand and gravel formations. Also included are data about well casings and concrete screens used in this construction.

Program for Water Distribution Systems

524. To help water works departments insure ample water supply now as well as after the war, The Pitometer Co., 52 Church St., New York 7, N. Y., is offering two bulletins as aids to the water works superintendent; Bulletin 21, "Water Waste Surveys," shows how leak surveys will prevent excessive loss of water, and Bulletin 20, "Distribution Studies," is designed to help plan your post-war water works rehabilitation program.

Better Street Lighting

525. By light control, better visibility, and reduced maintenance costs, Holophane Refractors greatly increase the effectiveness of your street lighting. Holophane Co., Inc., 342 Madison Ave., New York 17, N. Y., will send you detailed information on these refractors for use on any type of street lamp.

Pumps for Water Supply

526. If you are interested in pumping equipment why not get all the engineering data available on Pomona Pumps. Pomona Pumps, Fairbanks-Morse & Co., Pomona, Calif., will send you Bulletin A-11, giving full details on the engineering that goes into Pomona Pumps design including the use of Pomoloy, a special tougher and harder type of iron developed by the company, for use on all parts where ordinary cast iron would normally be used.

Water Supply and Sewage Disposal Electrification

527. If you are planning facilities that will supply continuous safe water for your community, as well as sanitary disposal of sewage, be sure you include advanced types of electric power distribution, motor drives, and operating control. Engineers of the General Electric Co., Schenectady 5, N. Y., will assist you in including these in post-war plans now.

Aids for Street Maintenance Work

528. Street maintenance men will be interested in catalog material offered by the Connery Construction Co., 2nd & Luzerne Sts., Philadelphia 40, Pa., on its line of tar and asphalt heating kettles, spraying attachments, pouring pots and other equipment used in maintenance work. Information on its Style B-2 heating kettle will be of particular interest. These are obtainable in 30, 80, 110, and 165 gallon sizes and do a job speedily and safely.

Pumping Equipment

529. Catalog material may be secured from the Manistee Iron Works Co., Monistee, Mich., on its line of centrifugal pumps. Its single-stage, double suction pumps are in capacities from 75 to 20,000 gpm; its multi-stage pumps 50 to 3,500 gpm with heads up to 1,600 feet.

Flushing for Street Cleaning Work

530. Officials in charge of street sanitation work will find of interest a new catalog issued by the Municipal Supply Co., South Bend 23, Ind., describing its Big 6 street flushers. This folder sets forth for you the results obtained from the use of street flushing for cleaning work, gives specifications and information about extra equipment which may be attached to the tanks, and other details that will give you the information you may need about street flushers.

(Continued on page 22)

★BETTER SKIDPROOFING

★FASTER ICE REMOVAL

USE →

SOLVAY
TRADE MARK REG U.S. PAT. OFF.
CALCIUM CHLORIDE

FOR ↓

- streets
- intersections
- bus stops
- sidewalks
- steps
- other public areas

Better Skidproofing

Solvay Calcium Chloride treated abrasives quickly dig into ice—don't blow away. This means fewer retreatments are required. Less treated abrasives needed because they are 56% to 108% more skid-resistant than untreated abrasives.

Faster Ice Removal

Used alone, Solvay Calcium Chloride quickly and more effectively loosens ice so that it can be easily removed.

SOLVAY CALCIUM CHLORIDE SAVES LABOR, TIME, MATERIALS and MONEY

Write today for complete details on better skidproofing and faster ice removal.

SOLVAY SALES CORPORATION
40 Rector St., New York 6, N. Y.

Gentlemen: Kindly send me your free booklet giving complete details on the method of using Solvay Calcium Chloride.

Name .....

Affiliated with .....

Address .....

City ..... State.....61-12

NO SURGE...

NO SLAM...

NO SHOCK...

The Clayton Pump Control Valve provides complete . . . and automatic . . . protection for both the pipe line and pump when installed in connection with a Horizontal Centrifugal Booster Pump. Surge and shock are completely eliminated since the smooth operation of the valve in opening and closing prevents severe strains on the line and the pump. An unusual feature of the Clayton Pump Control Valve is its ability to close *automatically* in the event of power failure.

WRITE FOR ENGINEERING DATA
REPRESENTATIVES IN PRINCIPAL CITIES

VALVE DIVISION
CLAYTON
"Feather Touch" CONTROL

CLAYTON MANUFACTURING COMPANY, ALHAMBRA, CALIFORNIA

CHECK THIS COLUMN—
USE COUPON ON PAGE 19

(*Continued from page 20*)

Bend Pipe with Speed

531. Greenlee pipe benders are used by city officials to speed pipe bending operations. This portable tool is compact, easily transported and capable of performing whatever job you may have in mind, bending pipe up to 4½ inches, rigid and thin-walled conduit, tubing, and bus bars. Catalog 35E is available from the Greenlee Tool Co., Division of Greenlee Brothers and Co., 2032 Columbia Ave., Rockford, Ill.

Incinerate Garbage and Refuse

532. If incineration of garbage and refuse in your community is being considered as a means of disposal, you will be interested in bulletin No. 214 from the Nichols Engineering & Research Corp., 60 Wall Tower, New York 5, N. Y. This is a discussion of the Monohearth, an incinerator employing the use of the revolving cone with adjustable stoking arms, so constructed that it spreads the mass of refuse and allows pre-heated air to mix with the combustible material, thus speeding the drying and burning process.

Aerial Ladder for Fire Trucks

533. Communities contemplating post-war purchases of fire equipment will be interested in information from The Seagrave Corp., Columbus 1, Ohio, about its all-steel aerial ladder. This equipment is all welded, each extension section equipped with safety locks; the ladder raises, lowers and moves hydraulically, and is controlled by one man.

Water Lubricated Pumps

534. Use by water works plants of Peerless Water Lubricated Turbine Pumps provides a sanitary method of pumping water. Information may be obtained from the Peerless Pump Division, Food Machinery Corp., 301 W. Ave. 26, Los Angeles 31, Calif., about this pump which comes in capacities of 15 to 30,000 gpm. The pump eliminates the use of oil underground so that the line shaft is lubricated by the well's water, thus keeping the original purity of the well water.

Radio's Part in Aviation

535. The installation of radio range beacons, markers, communication transmitters and receivers, and airport traffic controls in your existing or planned airport after the war will be instrumental in assuring safety and efficiency in air travel. Radio Receptor Co., Inc., 251 W. 19th St., New York 11, N. Y., manufacturers of these products, will send you a copy of "Highways of the Air" which further explains the importance of radio to aviation.

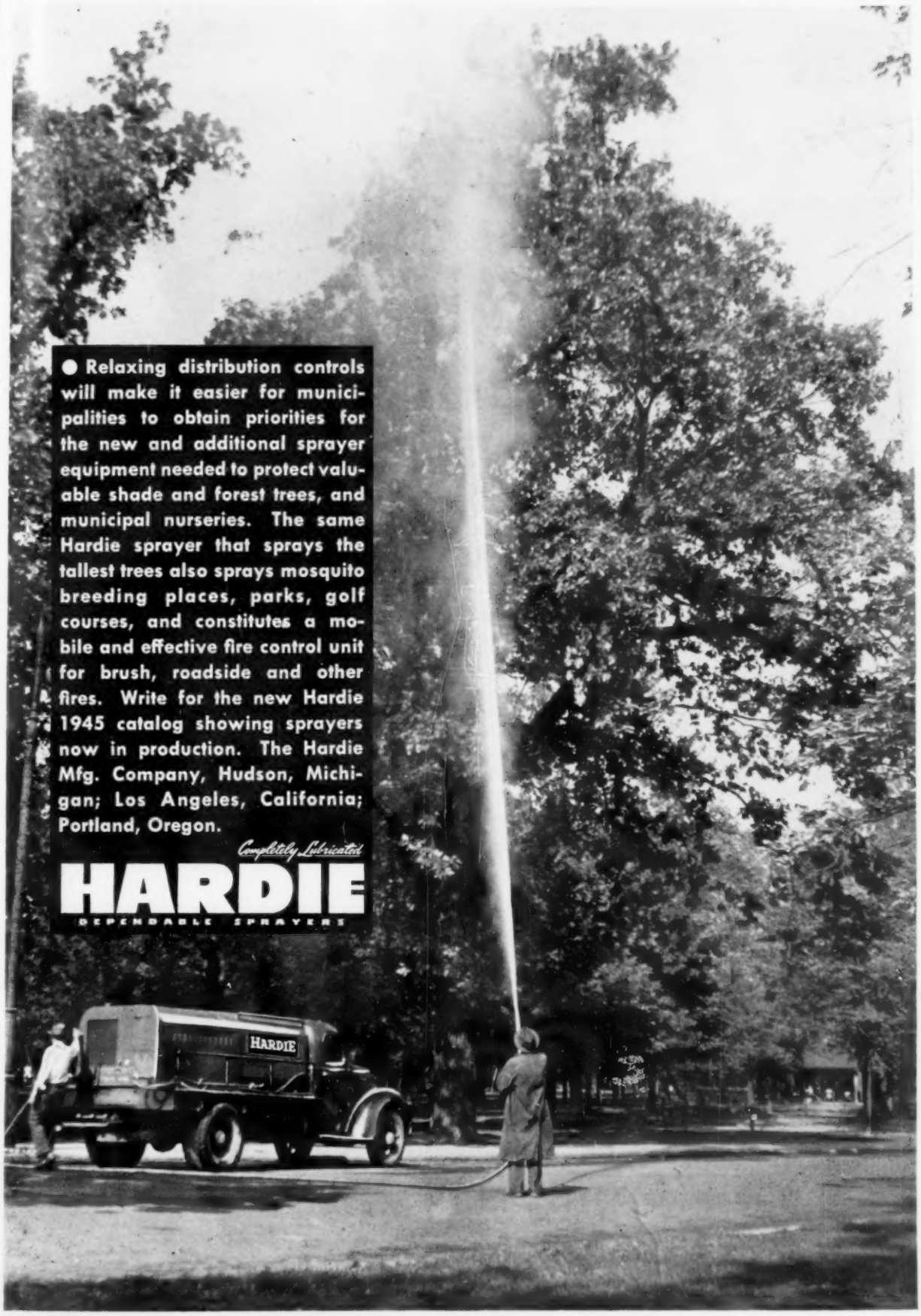
Water Works Pipe

536. Water works superintendents in the East will find valuable information available from Warren Foundry & Pipe Corp., 11 Broadway, New York 4, N. Y., about its plain cast or spun centrifugal cast-iron pipe. Also available are a variety of pipes and fittings from 2 to 84 inches in size.

Help for the Payroll Official

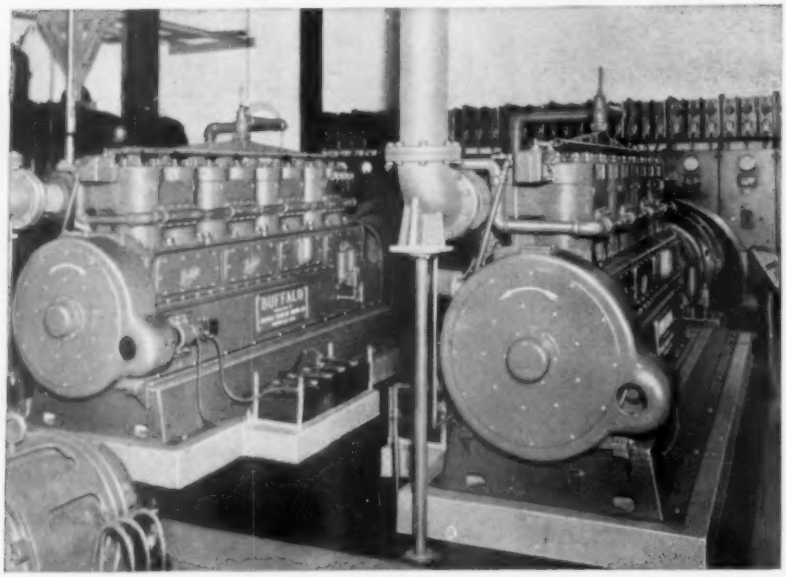
537. Municipal payroll departments whose problems are complicated by income tax and bond deductions may find easier sailing with the help of two aids being offered by Burroughs Adding Machine Co., Detroit 32, Mich. A booklet entitled "Payroll Peaks" graphically describes the growth through the years of payroll peaks, and provides measures to level them. Also discussed are several complete payroll plans and their suitability to various accounting needs. The second aid offered are Withholding Tax Tables for determining withholding tax figures if you are not computing tax on each employee's earnings.

(*Continued on page 24*)


● Relaxing distribution controls will make it easier for municipalities to obtain priorities for the new and additional sprayer equipment needed to protect valuable shade and forest trees, and municipal nurseries. The same Hardie sprayer that sprays the tallest trees also sprays mosquito breeding places, parks, golf courses, and constitutes a mobile and effective fire control unit for brush, roadside and other fires. Write for the new Hardie 1945 catalog showing sprayers now in production. The Hardie Mfg. Company, Hudson, Michigan; Los Angeles, California; Portland, Oregon.
Completely Lubricated
HARDIE
DEPENDABLE SPRAYERS
HARDIE

THIS PROTECTION *Pays for itself . . .*

BUFFALO ENGINES — ASSURANCE of PROTECTION



Lake Kilby Pumping Station, City of Portsmouth, Va. Two—ATT-8 Buffalo Gasoline Engines, each driving 300 KW, 1200 R.P.M., G. E. generators, installed by Dravo Corporation, 1943.

TO omit stand-by engine and pumping equipment invites trouble. When regular power service fails, the best to be hoped for is a flood of complaints from customers, taxpayers, or voters—and the worst is the risk of serious fire or epidemic.

The assurance of protection given by a BUFFALO stand-by motor generator or pumping set is well worth its cost—and the cost itself is returned to the community or user in lower insurance premiums.

Applied to a BUFFALO ENGINE installation, "assurance of protection" is no idle phrase. Years of special experience in building heavy-duty motors for this service have resulted in designs that have proven this assurance in thousands of important installations.

You can select a BUFFALO ENGINE that starts either manually, by remote control, or fully automatic—that reaches its full load in 30 seconds and runs at absolutely constant speed, delivering its power cleanly, quietly and without vibration.

Write for Specification Sheets for your files or information on any type of application that interests you.

BUFFALO GASOLENE MOTOR COMPANY

AC-124 BUFFALO 13, N. Y., U. S. A.

BUFFALO ENGINES — ASSURANCE of PROTECTION

BUFFALO ENGINES — 100 H. P. THROUGH 750 H. P.— IN GENERATOR AND PUMPING SETS FOR WATER WORKS — AIRPORTS — COMMUNICATIONS — FLOOD CONTROL — HOSPITALS — INSTITUTIONS — MINES — MOVABLE BRIDGES — THEATRES — SEWAGE PLANTS.

CHECK THIS COLUMN—
USE COUPON ON PAGE 19

(*Continued from page 22*)

Control Valves for Tanks, Basins and Reservoirs

538. Are the control valves in your system doing their job adequately? Ross Valve Mfg. Co., Inc., P. O. Box 596, Troy, N. Y., will send you catalogs or details to fit your particular system on their altitude valves for control of elevation and heads, combination valves that control both directions through valve, and remote control valves for use as primary or secondary control on any hydraulically controlled or operated valves.

Prevent Rusting of Steel Tanks

539. Detailed description is available to engineers and operating men about the Rusta Restor cathodic method to prevent rusting of steel tanks, from the Rusta Restor Division of The Johnston & Jennings Co., 861 Addison Rd., Cleveland 14, Ohio. This is an electrical method of preventing rust from forming and at the same time gradually removing any rust already in the tank.

Leak and Pipe Finders for Water Works

540. Water works departments will be interested in a 16-page booklet being offered by Fisher Research Laboratories, Palo Alto, Calif. Here is detailed information about the M-Scope products especially the Pipe Finder, Leak Survey Equipment, and Leak Detector that will simplify your water works repair needs.

Make Signs Readable at Night

541. Highway and street signs and markings are meant to be read clearly at night. If you feel those in your community do not measure up to the job they should do, you will get valuable information from the Minnesota Mining & Mfg. Co., St. Paul 6, Minn., on Scotchlite. This reflective material gives signs maximum brilliance without distortion of the letters.

Tree Spraying Equipment

542. Do you have a job of tree spraying to do periodically? Literature may be obtained from the Friend Mfg. Co., Gasport, N. Y., on spray pumps and park sprayers giving you the features of these pumps that make them important: mainly their simplicity of lubrication and the small number of moving parts.

Pump Data

543. Have you all the information you would like on pumps? Aurora Pump Co., 66 Loucks St., Aurora, Ill., manufacturers of turbine type pumps, centrifugals, and sump pumps will send you its Condensed Catalog giving further details on the various models available.

Concrete Pipelines

544. Lock Joint Pipe Co., Ampere, N. J., will send you valuable data on Lock Joint Reinforced Concrete Pressure Pipe. Information points to the fact that pipelines using this product provide permanent high carrying capacity for they are free of tuberculation and corrosion.

Suggestions for Mimeographed Annual Reports

545. Communities with Mimeograph machines will find new uses for them in the described folder "How to Plan and Publish Your Annual Report" being offered by the A. B. Dick Co., Dept. AC-1144, 720 W. Jackson Blvd., Chicago 6, Ill. Here are practical suggestions for you to follow in the preparation of an annual report on the Mimeograph. This folder will help you produce not only a more attractive report but one that will be less expensive.

(*Continued on page 26*)

Many municipalities throughout the country are now making post-war plans for improvements or additions in their water systems. STREAMLINE copper pipe connected with STREAMLINE solder type fittings provides the most practical installation for water service lines . . . for all general plumbing and heating purposes, and for many applications in filtration plants.

Used together, STREAMLINE copper pipe and STREAMLINE solder fittings are an unbeatable pair.

STREAMLINE copper pipe when assembled in the STREAMLINE fitting rests upon an internal shoulder of practically the same height as the thickness of the pipe wall, thus forming a continuously smooth waterway which offers no anchorage points for the building up of foreign matter in the water.

VIBRATION PROOF

STREAMLINE copper pipe connected with STREAMLINE solder fittings is free from the harmful effects of vibration. Vibration is not localized at the joints as it is with threaded or flared fittings, but is harmlessly dissipated throughout the service line.

SETTLEMENT AND FROST ACTION

STREAMLINE copper service pipe is so ductile that it will stretch enough to easily take care of any settlement of filled earth, or, in fact, anything that might impose a strain on the service line which would cause failure of rigid ferrous pipe or, at the very least, cause leakage at the threaded connections.

In the Northern States and in the Dominion of Canada, copper service pipe of our manufacture has an outstanding advantage that places it far in advance of any other service material. This advantage is its resistance to frost action. This service pipe containing water under almost any range of pressure used in water service work can be alternately frozen and thawed out for a considerable number of times without showing any effect except a slight increase in diameter.

INVESTMENT INSURANCE

STREAMLINE copper pipe and fittings are at present being used 100% for war purposes in naval craft of practically all kinds, but it is not too early to plan again for their peacetime use. Waterworks officials who are responsible for the return on a heavy capital investment will find STREAMLINE materials one of the lowest cost forms of insurance that they can adopt.

STREAMLINE
PIPE AND FITTINGS DIVISION
MUELLER BRASS CO.
PORT HURON, MICHIGAN

Plenty of Good Compost with Minimum Labor!

Where compost is still prepared by laborious handmixing, there simply hasn't been enough of it during these war years. Parklawns have suffered accordingly.

Many cities, however, have been able to maintain the sightly appearance of their parks, despite the manpower shortage. In these municipalities an abundant supply of compost is provided, with minimum labor, by the Royer Compost Shredder and Mixer.

All the work required is done by one man, who shovels the materials into the hopper. The machine shreds and thoroughly mixes them, removes stones and trash, and discharges onto pile or truck a pea size compost of the kind that results in healthy grass and shrubs. All this is done automatically and in a fraction of the time required for hand mixing. Most parks have plenty of compost—with the addition of a Royer, your lawn dressing material requirements are cared for.

The Royer is also highly useful at the schools for mixing materials for walks and athletic grounds; and at the sewage disposal plant for converting sludge into an effective and ready-to-use fertilizer. Write for Bulletin 440.

THE ROYER FOUNDRY & MACHINE CO.
179 PRINGLE ST., KINGSTON, PA.
PIONEER BUILDERS OF COMPOST SHREDDERS

CHECK THIS COLUMN—
USE COUPON ON PAGE 19

(Continued from page 24)

Police and Fire Alarms

546. If you feel your community does not have adequate fire and police alarm signals and are interested in remedying the situation after the war, you may receive information from the Southern Switch & Signal Co., Shreveport, La., on their Double-Duty Sentry. This is a dual purpose alarm that will give you 24-hour service

Fire Fighting Equipment to Fit

547. If you have a specific fire fighting job that needs to be done, or can use standard fire fighting equipment, Ward LaFrance Truck Division, Great American Industries, Inc., Elmira, N. Y., will send you information about their equipment. They manufacture pumpers, quadruples and city service ladder trucks from 112 hp to 235 hp.

Portable Compressors of Uniform Temperature

548. The ability of the all-water-cooled, all-weather Gardner-Denver Portable Compressors to operate regardless of temperature or altitude extremes, is due to water jacketed cylinders which insure uniform operating temperatures. Complete information and specifications are available from the Gardner-Denver Co., Quincy, Ill.

High Pressure Street Flushers

549. The high pressure water streams from Etnyre sanitary street flushers make it possible to clean streets up to 42 feet wide in one trip. Bulletin No. 306 offered by E. D. Etnyre & Co., Oregon, Ill., shows how these machines are used for fire fighting, sewer cleaning, surface sprinkling, tree spraying, and the watering of shrubbery, in addition to street flushing. Information about mountings and specifications are also available.

Floatless Liquid Level Control

550. Catalog 943 is being offered by the B/W Controller Corp., 2206 E. Maple Rd., Birmingham, Mich., discussing the mechanisms and workings of B/W all-electric floatless liquid level controls. The catalog points out that these controls are not affected by pressures, temperatures, acids or caustics, and that relays can be located any distance from the electrode. Wiring diagrams and full information is included in the catalog.

Safety Lighting for Your Community

551. Municipal officials delving into the subject of adequate street lighting for their communities, will be interested in a copy of "Target for Tonight" being offered by Westinghouse Electric & Mfg. Co., P. O. 868, Pittsburgh 30, Pa. This new booklet contains facts, figures and actual "before-and-after" case studies that reveals new information on the subject of public safety lighting.

Keep Police Motorcycles Serviced

552. Though new Indian motocycles will be scarce until restrictions are lifted, data may be secured from the Indian Motocycle Co., Springfield, Mass., on replacements parts and service for your existing Indian equipment.

Engines for Emergency Use

553. If you are operating your municipal plant without reserve or emergency power you will be interested in literature from the Buffalo Gasolene Motor Co., Dept. AC-114, Buffalo 13, N. Y. Catalogs and specifications sheets give motor descriptions, and point out that Buffalo engines for motor generator or pumping sets will stand by to insure you against power failure in an emergency.

Vol. LIX, No. 12 **The American City** *December, 1944*

Policy Determination Needed

On Post-War Aid to Cities from Federal and State Governments

FOR the intelligent planning of future municipal improvements and urban redevelopment, local officials need prompt determination by federal and state governments as to the amount of financial aid, if any, that will be offered to the cities towards post-war construction and land-acquisition, and as to the basis of eligibility for such aid.

The rather extreme problems of the city of Richmond, Calif., as set forth by City Manager J. A. McVittie on pages 56 to 58 of this issue, provide a case in point. It might be argued that, in the long run, many municipalities will benefit greatly by the industrial expansion which will result from conversion of war plants to peacetime industry; and that the financial problems of such cities will be less severe than those of other communities to which the war has brought permanent loss in population.

Be that as it may, there is evidence of a widespread anticipation by municipal officials, of post-war federal or state aid in the financing of post-war public works and in the assembly of land for urban redevelopment. To secure authoritative opinions as to the need for such aid and as to the basis on which eligibility should be determined, THE AMERICAN CITY addressed letters on this subject last month to various state post-war planning boards and reconstruction and reemployment commissions. The first installment of replies follows:

Alabama

The real need in Alabama, in my opinion, is that municipalities should be given more home rule and more authority over taxes and debt limitations than they now have. Surely the municipalities of today are called upon to cope with problems which were not envisioned forty-odd years ago when the present Alabama constitution (1901) was drafted. This constitution imposes many and severe limitations on the autonomy of Alabama municipalities and counties. So first, there is a need for the Legislature of this state to consider giving more autonomy to the Alabama municipalities and counties.

If this is done, then I would say that purely local public improvements should be handled by the localities affected without any state or federal aid. On broader matters involving more than a local problem—for example, state and federal highways—a cooperative and financial participating basis for handling such problems is clearly indicated.

In regard to urban redevelopment, it is my opinion that the Alabama Legislature should give consideration to permissive legislation for municipalities to establish appropriate machinery to cope with this complex problem. We shall give serious study to this matter here in the State Planning Board prior to the next session of the Alabama Legislature, in order that we can offer suggested legislation on this matter if conditions are favorable.

If Alabama municipalities are not given more home rule, there probably will be a need for state and federal aid to assist them on public improvement projects. The basis for eligibility for such assistance should be that the municipality through a legal status planning commission has prepared comprehensive plans of community development looking at all aspects of the problem—physical, social and economic. The need for assistance will increase during times of depression.*

W. O. DOBBINS, JR.
Director, State
Planning Board

* Mr. Dobbins explains that "These opinions are my own personal ones and are not to be construed as representing the official position of this or any other agency of the State of Alabama."

California

The State of California faces problems in the transition from war economy to peace economy which are unique in nature, and greater in magnitude and intensity, than similar problems facing the United States as a whole.

The state, counties, and municipalities of California are planning for public works in the post-war period with primary consideration given to the need for proposed construction. They are currently planning for the financing of such construction by the accumulation of reserves, as well as by future provision through taxes, bond issues, or grants of federal aid in accordance with established policy.

Where population increases through assignment of war activities have created permanent demands upon the public facilities of the community, beyond the ability or proper responsibility of that community to provide them, the national government should participate in the financing of such facilities and expedite their construction as rapidly as materials and manpower can be made available.

Neither the State of California nor its counties and municipalities can undertake the financing of any public works program sufficient in size to constitute a major device for relief of mass unemployment.

Early determination should be made of federal policy on the specific question of the use of local public works as a device for the relief of unemployment. If such use of local public works is made a federal policy, federal participation in financing the works must be on a large scale, and will be most effective if carried out through channels similar to those established for the distribution of federal aid for highways.

The entire question of federal policy as to local public works, and federal participation in such local public works, as a factor in the transition from war economy to peace economy, will be best conceived if determination has first been made as to the policy of the national government on other and more important phases of the transition; specifically, on plans to provide for orderly liquidation of war industries and industrial plants.†

EARL WARREN
Governor of California

† From Governor Warren's statement to the Congressional Committee on Public Buildings and Grounds.

New Mexico

I feel that public works, outside of highways and airports, is essentially a matter for the local governmental units to finance. They are in much better shape financially than the federal government.

VINCENT J. JAEGER
Director, State Planning Board

North Carolina

The position of the North Carolina State Planning Board is that the federal government should not provide the financing for State and local public works projects other than those items which are now financed on a matching basis, such as highways, certain educational projects, public health, etc.

We are also committed to the policy that the state should not aid in the financing of public works projects for local units of government within the state. This point of view is all the more justifiable in so far as North Carolina is con-

(Concluded on page 99)

Successful Street Maintenance

By A. (JACK) ASKEW
Superintendent of Streets
Birmingham, Ala.

A coat of liquid asphalt is being shot from the Rosco distributor.

PROTECTING its $22,000,000 investment in 625 miles of paved streets, the city of Birmingham is now in the third year of a successful maintenance program which consists of a surface treatment designed to catch trouble before it starts.

The present program was initiated when it became evident that the maintenance program in effect before I became superintendent was inadequate to meet conditions. Previously, operations consisted mainly of plugging holes with a cold laid plant-mix material. As these holes were not properly water sealed much of the work had to be repeated over and over again and never proved of any permanent value.

With the new program of maintenance more successful results were obtained. The first work was started by salvaging some 15 miles of streets which had been paved by a cheap penetration process. A Barrett distributor was used and in this experimental stage the work was found to be so effective that there has been little maintenance on these particular streets since.

Under WPA several miles of streets were resurfaced in the downtown area, the existing paving was reconditioned with a hot-mix binder and topped with 2 inches of hot sheet asphalt. This program was somewhat slowed after we entered the war. First WPA was discontinued. Then the scarcity of materials developed and, to add to the problem, the remaining streets to be resurfaced were in low-rental areas which could not well stand an assessment for the work.

In the meantime, however, we had been experimenting on several of our asphalt streets with a surface sealing treatment. We used old streets that had been causing us the most trouble and watched how they held up through several seasons. They remained in such excellent condition that we decided to use this type of repair exclusively. As a result, we purchased an 800-gallon Rosco asphalt distributor and put it into operation in the spring of 1942. At that time we felt the work was so necessary that in spite of difficulties we proceeded by increasing our annual budget $54,000 without assessing property. Since then we have surfaced some 52 miles of streets improving our methods as we gained experience.

This surface treatment program has been so successful that we have had no additional maintenance on 99 percent of the streets we have treated. During the 10-year period we hope to cover every street that has been a maintenance problem. We have also experimented with surface sealing concrete streets which were causing trouble from chipped and cracked surfaces and have found this type of repair work is also practical.

Here are the steps in treatment process: First a gang of workmen go over the street, repairing broken and rough places by removing the faulty area until it is completely surrounded by sound paving, cleaning this area out, squaring it up and providing a shoulder against the movement of the patch. In the case of ravelling of the surface due to an inadequate base the affected area is dug out, adequate drainage provided and a new foundation laid. A cut-back is sprayed over the prepared holes to give a tack coat. This provides a good binder between the old street surface and the patching mixture used to fill the hole. The patch mixture, when applied to the hole, is spread with hot rakes and compacted.

Next a seal coat of liquid asphalt is spread over the street. This seals cracks and covers holes and patches similar to a first coat of paint on wood. Next, slag is applied by a special slag-

Buffalo-Springfield roller compacts the asphalt. Note sweeping attachment.

spreader attachment to the back of a truck. By means of hand brooming the high spots are leveled. A Buffalo-Springfield roller with a sweeping attachment passes over the street at a speed of no more than three miles an hour compacting it while the brooming unit further distributes any loose slag.

This entire operation requires about three hours for each city block and immediately thereafter the street may be opened to traffic. Thereafter, the streets are checked daily for bleeding. If it appears, the loose slag thrown to the shoulder by traffic is swept to the crown to be absorbed by the bleeding. After the street has been in use for two weeks any surplus slag which remains on the street is swept up for reuse and the street is flushed.

An average of .28 gallons of liquid asphalt is applied per square yard. This is an 85-100 penetration asphaltic cement. The amount of slag used is about 6 pounds per .1 gallon of asphalt, is dust-free and from 3/8-inch to 14 mesh in size.

The slag spreader attached to a 2½-ton Dodge truck made in a machine shop in Birmingham regulates the number of pounds spread per square yard.

STEPS IN THE PROGRAM

In the fall of the year we survey the city streets filling in a form with this heading—

Form 1 SURFACE TREATMENT SCHEDULE FOR 19—.

No.	Street	From	To	Inc. Inter.	Rate	Lbs. Chips	Length	Width	Sq. Yds.	No. Gals.	Tons Stone

This furnishes a schedule of the streets to be treated in the following spring. From information on this form, work sheets for the patching and sealing crews are made out on

Form 2 STREET PATCHING FOR SURFACE TREATMENT PROGRAM 19—.

No.	Streets	From	To	Type Paving	Need Repair	Nature of Repair Needed

When work for each entry listed on Form 2 is completed the various repair foremen fill out—

Form 3 SURFACE TREATMENT

Location:					Type			Dimensions				Yards	
Date	Crack Sealing				Repairing			Shooting				Expense	
	Day	Man	Gals.	Gal.	Day	Man	Tons	Day	Man	Tons	Gals.		
	Hrs.	Hrs.	A.C.	Gas	Hrs.	Hrs.	Asp.	Hrs.	Hrs.	Slag	A.C.	Truck	Dist.
Total Amount													
Total Cost													
Grand Total $ ..... Cost Per Sq. Yd. ..... Labor Waste													

This form is then filed in numerical order according to the job number as listed on the schedule form for Surface Treatment or Form 1.

From Form 3 is taken information for a final form which is sent with a letter from the Commissioner of Public Works to every resident in the treated area. A complete permanent card record is then made of each job including the total cost, the cost per square yard, and any remarks about the conduct of the job that might prove helpful in subsequent work. At the end of the month a breakdown is made of all cards for the month and a monthly record made.

When the program is concluded in the fall, the totals for that year are immediately obtainable. The totals for this year are 407,598 square yards laid covering 259 city blocks or a distance of 22 miles. The average cost is 5 cents per square yard for simple surface treatment and when patching is necessary the cost is somewhat less than 7 cents per square yard.

As improvements in procedure have been initiated the ease and speed of the work have increased. At first the slag to be used was dumped at 25-foot intervals and distributed over the street by hand. A slag spreader added to the truck eliminated this. The attachment of a broomer to the roller also speeded operations.

The surface treatment program, because it is seasonal in nature, usually from May 15 to October 15, is followed exclusively during this period. Other maintenance work is stopped except for emergencies. While this is primarily a summer program the department felt it essential to successful operation to arrange schedules that could maintain a full year-round crew of trained workers. During the winter months the street department's workers are kept busy in a number of ways: making repairs on sidewalks, alleys, curbs and gutters; improving drainage; and surveying streets in order to compile a list of projects for the spring program. In inclement weather they receive instruction.

Fall River, Mass., Supplies Water To Its Wartime Industries

By JOHN L. HAYDEN
Hayden, Harding & Buchanan
Boston, Mass.

IN a suprisingly short time after our advent into the war highly industrialized New England found itself producing war materials in every square foot of industrial space. This very sudden expansion of manufacturing activity was evidenced with particular intensity in Fall River, Mass., and with this rapid increase in manufacture came an immediate demand for more water.

Foresighted city officials, Mayor Alexander C. Murray and Water Superintendent, John W. Moran, had anticipated industrial expansion for Fall River but not to the extent that it occurred in 1941. Surveys had been made and plans completed to expand water supplies. Although these would have been more than ample to meet any highly expanded peacetime growth, they were definitely inadequate to meet the wartime demands. It was therefore necessary to make further surveys and the consulting firm of Hayden, Harding & Buchanan of Boston was retained for that purpose.

Surveys Made

North Watuppa Pond, the source of the domestic supply, furnished 6.75 mgd previous to 1940, and South Watuppa Pond supplied 15 mgd for industrial use. Surveys of the war plants revealed that in less than a year their need for water would total 31 mgd, more than a 50 percent increase, and an amount far in excess of the yield from North and South Watuppa Ponds. To further aggravate the situation, it was anticipated that exceedingly dry seasons were forthcoming. This forecast was more accurate than expected for in 1943 the rainfall dropped to almost 70 percent of normal.

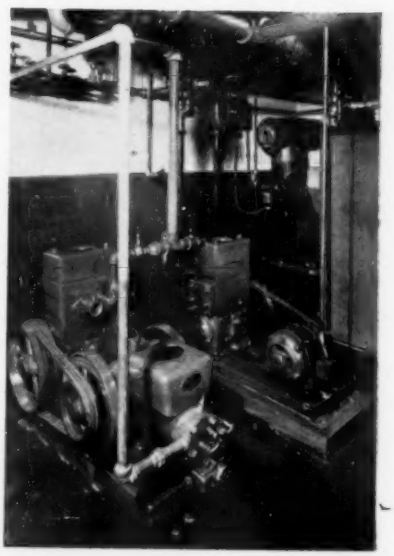
Immediately further surveys were made. After a thorough study of all possible sources of supply, it was found that Lake Noquochoke, 4.2 miles from Fall River, would be adequate to supply the mount of water needed for wartime industries.

Land and water rights were quickly acquired and construction plans were started. The west shore of the lake, on property acquired by the city, was an ideal site for the pumping station.

Study was given to the method of pumping and the type of motive power. The nearest power available was a half mile away and because of the expense and shortage of copper wire the use of this form of power was abandoned. The low operating and maintenance costs of Diesel engines determined our choice of these.

Water flows to the pumping station via a concrete flume 6 feet wide with wing walls which are completely covered for a distance of 25 feet to the wall of the pumping station by precast concrete planks. To prevent debris from entering the flume a travelling water screen was installed just back of the wing walls and is operated from the control panel in the pump house and driven by an electric motor. In order to keep this unit from freezing

This is the attractive Noquochoke Pumping Station at Fall River, Mass., showing the wingwalls of the intake and the movable screen.



Power for the Fairbanks-Morse compressors which start the Diesels is furnished by two Fairbanks-Morse units, one a gasoline engine and the other an electric motor.

REVEALED SOURCES OF WATER SUPPLY

Water Supply	Sq. Miles	Yield gpd Minimum	Average	Yield gpd Duration of war
North Watuppa	9.14 minus	2,500,000	7,000,000	8,000,000
South Watuppa	18.14 "	4,921,000	15,000,000	31,000,000
Noquochoke	28.7	4,498,000	25,000,000	20,000,000

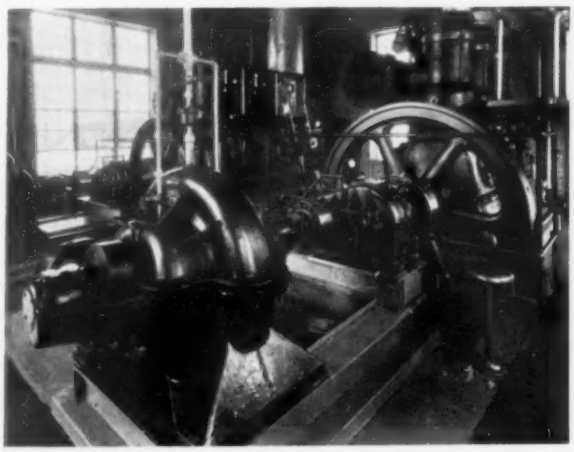
it is heated by a thermostatically controlled contactor mounted within the steel housing of the screen and temperature is thus maintained at 40° F though the outside temperature may drop as low as 20° below zero.

Foundations

Entering the building the flume is split in the shape of a Y to form the intake wells for each of the two centrifugal pumps, mounted directly over them. Beyond the intake wells are the mass concrete foundations which support the Diesel engines. These are 8 feet wide by 18 feet long. Each unit is 9 feet deep extending from the pump room floor to below the basement floor.

The pumping units consist of two 16-inch single stage centrifugal pumps each with a capacity of 6,900 gpm working against a 93-foot working head and with an average 10-foot suction lift. Each pump is powered by a Fairbanks, Morse three cylinder 225-hp Diesel engine operating at a rate of 300 rpm. Two increaser gear units with a gear ratio of about one to two increases the rotative speed of the Diesels to the pump speed of 635 rpm. Each Diesel is equipped with a snubber on the exhaust system extending through the roof to muffle the discharge explosions.

Northwest back-hoe is placing a section of pipe. Note the size of the pipe in comparison with the worker.



These Fairbanks-Morse Diesel engines are connected through speed-increaser gears to two 6,900 - gpm Fairbanks-Morse centrifugal pumps.

These pumps are automatically primed by two rotary vacuum pumps and in case of emergency by a small air-cooled manually operated gas engine. Every operation in the pump house is controlled from a panel located in the control room.

In order to convey the water from the lake to the town 4.2 miles away, a pipe line had to be laid. The most logical location was in a grass separation strip of a highway running in a direct line from pump house to Fall River. A 42-inch diameter reinforced concrete Lock Joint pipe was selected as the most suitable size and type. However, to conserve steel, instead of having the usual steel cylinder core with wire mesh on either side and concrete grouting around the frame, the pipe was so designed that the reinforcing was graded with more reinforcing used on those sections of pipe that would be subjected to the higher pressure. In this manner it was possible to eliminate the steel cylinder and the savings effected amounted to 120 tons of steel. This unusual design was proved sound in subsequent field pressure tests when no leakage occurred under working pressures up to 200 percent.

At the pumping station end of the line an 8-inch C. I. blow-off has been tapped into the pipe line. This is controlled by a gate valve in front of the pumping station. At five high points along the pipe line automatic air release valves and chambers are installed. Fire protection is furnished to Westport Village by 15 hydrants placed at strategic locations.

In laying the pipe many problems had to be worked out to insure the speed of installation that was necessay both to meet the urgent need for water and to insure a free flow of traffic on the highway which connected Fall River with New Bedford. The method adopted was to string the pipe to be laid along one edge of the grass strip, excavate the grass strip to an 8-foot depth piling the excavated earth on one side of the highway and allowing two-way traffic on the opposite side of the highway. Thus, a free flow of traffic was accomplished without slowing the work.

Two back hoes operating separately excavated the trench, picked up the pipe with a steel cable sling, lowered it into the trench and guided the spigot end of the joint into the bell. In this way each machine and crew laid between 18 and 20 sections of 12-foot pipe a day. The speed of this operation depended on well regulated delivery of the pipe, therefore, a plant was located near the project which made deliveries regularly. With the method of laying and the excellent cooperation of the manufacturer the pipe line was completed sooner than had been estimated.

The job was completed in September 1943 and water was delivered to Fall River in October.

A City Earns the Purple Heart

". . . awarded to . . . citizens of the United States . . . who are wounded in action . . ."

By J. A. McVITTIE
City Manager, Richmond, Calif.

AMERICAN cities have been fortunate in World War II. No community in the United States has had to rescue its inhabitants from bombed-out homes. No American city has had to find temporary quarters for municipal officials blasted out of their offices by enemy raiders. American hospitals are not jammed with the victims of incendiary fire and falling debris.

And yet since the war began countless American communities have had to face almost the same problems of housing, feeding, hospitalization and restoration of municipal services as the bombed-out cities of Europe. It was not war-borne bombs which brought these problems here, but war-borne production.

Richmond is a dramatic example of one of these American cities which now, as the end of the war draws nearer, must find ways of healing its wounds and rehabilitating itself for normal, peacetime existence. The story of what war did to Richmond, and of the problems that peace will bring, may serve to illustrate a post-war dilemma faced by many California communities and may also point the way to a solution. Richmond is unique only in the extreme severity of its affliction and in the forethought of its municipal officials, who made the survey and prepared the report upon which this account is based.

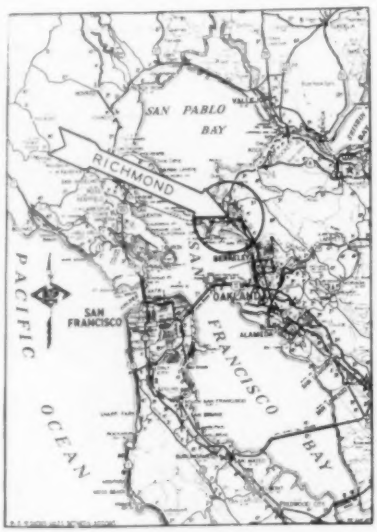
How War Came to Richmond

In April 1940, 23,000 people lived in Richmond. Many of them worked for the Standard Oil Company, or for the Ford Motor Company, or for one of numerous other smaller industries which constituted Richmond's economic reason for being. Some of them were commuters to jobs in the other cities which, like Richmond, border on San Francisco Bay.

Then, because of Richmond's almost unequalled combination resources of deep water and unoccupied land, Richmond was chosen as the place in which to build 30 ships under a war contract.

That was late in 1940.

By the end of 1942, there were four



federally owned, Kaiser-operated shipyards and a prefabrication plant in Richmond, sprawled over nearly 900 acres, much of it man-made. By 1943 almost 100,000 men and women were working in the yards from which by mid-1944 over 550 ships had slid down the ways.

Makeshifts were provided. The federal government threw up 24,000 temporary war housing units within the City of Richmond and thousands more in surrounding areas. Schools were operated on a two-shift, then on a three-shift and finally, in extreme cases, on a four-shift basis, with pupils successively using the same rooms. Setting out to hire 75 additional policemen, the city was able to hire only 8 because of inability to meet the high wages being paid in war industry. These are merely scattered instances of municipal disruption and helplessness. But in spite of the hardship, Richmond managed to get by and to turn out its magnificent share of the sinews of war.

Now, in the latter half of 1944, the war in Europe seems to be almost over, and the end of the war in the Pacific may be in sight. The shipbuilding contracts which brought Richmond mammoth new industry, hordes of new residents, and congestion in every detail of daily life are already beginning to dwindle. Richmond continues to need expensive additions and improvements to its municipal and civic plant to take care of existing war population. But besides that, it must plan to take care of a post-war population which will certainly not fall below 50,000 and may well be over 75,000.

What does Richmond need to take care of a permanent minimum population of 50,000? This is the question which Richmond city officials attempted to answer in their survey, and here is what they found.

Roofs Over Their Heads

Everyone agrees that most of the war housing units must be removed as soon as the war work is over and the press of war population abates. Much of it violates building codes and elementary principles of zoning. Most of it is barely livable now, and is rapidly becoming less so. And clustered as it is around the four shipyards, much of it occupies land which could be industrially valuable but is residentially undesirable.

Above all, Richmond wants to avoid the creation at its very heart of a "ghost town" to haunt its post-war future. Therefore, in consultation with federal agencies and the principal local industrial users, the city has formulated a proposal suggesting the order in which the buildings should be torn down or carted away. It has set up alternative plans, one based on the utility of the respective housing projects, the other based on the degree to which each project violates building codes and good zoning practice and on the need for maximum utilization of the land on which the houses are built. In addition, it is estimated that over 300 private dwellings violate minimum housing standards and should be condemned and torn down as vacancies occur.

After the war, to expand its accommodations for good living, Richmond will need new houses, American

style homes which are soundly built, sensibly located, and attractive. The demolition of much of the war housing depends in the final analysis on how fast those new buildings are available. People cannot be thrown out of their old shelters until there are new homes for them. For this, Richmond is depending on private builders. Speed is needed, but also sound planning so that there will be no repetition of the war mistake when builders failed to use 3,700 vacant building sites within the city and constructed whole new developments in areas where there were no existing municipal facilities.

These Are Future Citizens

Lacerated human bodies, blood and broken bones are not the only sign of war. Twenty thousand Richmond children, outwardly hale, also suffer although in a different manner from the British youngsters who were the victims of dive bombers or the orphaned children of bomb victims. During the war Richmond found it impossible to provide either the quantity or the quality of schooling to which an American child has a constitutional and legal right in California. The immediate result has been a juvenile delinquency rate at least three times higher than that of the rest of the state. In the long run, that deficiency may mean that 20,000 future citizens have missed a vital part of their education to carry forward the democracy which our armed forces are fighting to preserve.

In terms of school buildings alone, Richmond critically needs at once over $350,000 worth of new construction. In addition, the city urgently requires school facilities amounting to another $1,500,000 as soon as the war is over, besides $220,000 more in school buildings which should be built soon if the city is to provide the kind of schooling required by a peacetime city of 50,000.

Richmond's youth service needs are no less critical. Permanent detention facilities, a separate section of police headquarters for juvenile cases, a modern police juvenile bureau with trained workers, more probation and truancy officers must be provided if delinquency is to be kept in check.

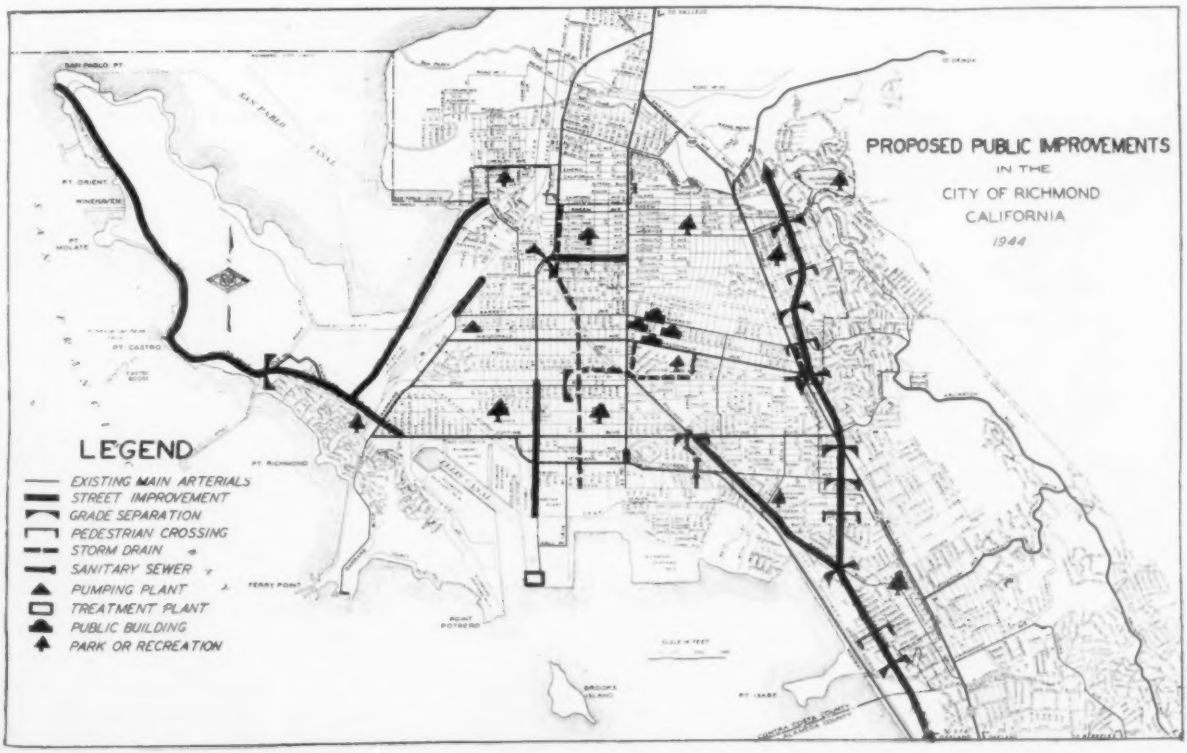
Richmond recognizes, however, that the prevention of delinquency, rather than its control, is the true answer to its youth problem. For this it needs, besides a normal, one session school day, enlarged vocational and trade training departments, well supervised playgrounds, recreation centers and "teen-age" centers, stronger youth programs in the churches, and expanded facilities for the group work agencies such as the "Y" and the boys' and girls' organizations.

All these things will require money. During the war federal funds trickled into Richmond to provide a few more classrooms and recreational facilities. But what Richmond needs is not a trickle but a stream.

City Facilities, City Services

Critically needed right now are municipal improvements amounting to almost $1,500,000. Another group of facilities, marked "Urgent!" amounting to close to $1,000,000, ought to be constructed immediately after the release of war priorities. Besides that, over $4,500,000 worth of additional facilities is needed if Richmond is to provide the kind of services required by any normal peacetime city with a minimum population of 50,000. The municipal shopping list includes sanitary sewers, storm sewers, streets and highways—not only new construction, but reconstruction, maintenance and repair—a new city hall, a new municipal auditorium and recreation center, a new library, a new police headquarters, a new fire alarm building, a fire drill tower, new alarm equipment, at least eight new or improved recreation facilities, parks, and a new emergency hospital.

For school buildings and municipal



The war-wounded city of Richmond specifies post-war improvements needed for its inflated population.

facilities. Richmond needs about $9,000,000 to repair only the physical ravages of the bloodless war which has been waged within its city limits since 1941, and to restore it as a normal peacetime city.

Can the city pay the bill?

Richmond's municipal financial ability was blitzed as severely by the war as the city's other facilities. Until 1940 Richmond, like other cities, was able to finance fully four-fifths of the current cost of government from the property tax. By 1943-1944, property taxes yielded 55 percent more than in 1939-1940—but they accounted for only 48 percent of the sum spent to keep the city's head above water.

The reason? Property taxes are based on assessed valuation. In the face of quadrupled population and enormously increased municipal needs, Richmond's total assessed valuation had increased only about 40 percent by 1944, due in part to the removal of over $1,000,000 assessed valuation in property taken by the federal government. Even a rise in the tax rate from $1.963 in 1940-41 to $2.205 in 1943-44 could not begin to provide the funds necessary to keep the city going.

Richmond resorted to every possible expedient to raise the other 52 percent of last year's expenses. In 1943 the city adopted a comprehensive licensing ordinance, taxing businesses, trades and professions a flat $10 plus $1 for each employee, for the duration of the war. Parking meters were installed. A recent ordinance will tax amusement tickets, provided the voters approve in November. Fines and franchise tax receipts increased, a wartime phenomenon only, but still the city had to rely on federal grants and federal payments in lieu of taxes for one-fifth of its total expenditures in 1943-44.

Richmond's elementary and high school districts found themselves in even more desperate financial straits in the face of the war-imposed load of responsibility. They are now up to their legal tax limits and are still unable to meet even current operating expenses. An application to the federal government for more than $500,000 for the operating expenses of elementary and secondary schools for 1944-45 brought only $47,000.

There seems to be no hope at all of finding in local coffers the $7,000,000 for municipal improvements, and the additional $2,000,000 for schools, which Richmond deems necessary to the normal operation of a post-war city of 50,000. The city's tax rate is already twice as high as the rate in many cities. And it has already tapped to the limit all other internal sources of revenue. With a post-war tax rate somewhere between the rate for 1940-41 and the rate for 1943-44, it would take Richmond over five years to finance on a pay-as-you-go basis just the most critical projects; over three years more to finance urgent projects, and nearly twenty years more for the city to afford other projects necessary before Richmond can provide minimum services for 50,000 post-war citizens.

Nor is debt the solution since the city already has $985,000 in outstanding bonds, several times the bonded indebtedness of most California cities with comparable pre-war populations. Ninety percent of its present debt was incurred for the development of the deep water harbor, the very facility which made it possible for the federal government to establish the shipyards.

Assistance from outside seems to be Richmond's only hope. It may expect some $30,000 from the county to help provide the new emergency hospital, while state funds for the preparation of plans and land acquisition, and gas tax money for one storm sewer may bring another $65,000 into the city's post-war fund. But these sums bridge only a tiny distance in the several million dollar gap between Richmond's ability to pay and Richmond's need. That gap, Richmond believes, should be filled by the federal government.

Why the Federal Government Is Responsible

Everybody knows that World War II is everybody's war. Everybody's sons and everybody's labor, everybody's taxes and everybody's future have been bound up in it ever since months before Pearl Harbor.

Federal responsibility for wartime help to communities congested by war industry was expressed in the Lanham Act and other legislation which provided funds (insufficient though they were) to alleviate municipal stress. But there is no legislation on the books which will provide post-war assistance to a community whose war-imposed afflictions do not cease the moment the armistice is signed. No American would condone dumping a wounded veteran out of an Army hospital when the guns cease firing. No more, then, should a crippled city be treated in that manner.

Richmond's case is simple. It was drafted into the country's service to turn out ships. Richmond did its job. And now, and for some time to come, Richmond will be suffering the effects of that war-borne wave of workers which has swamped its municipal facilities and from the congestion which has endangered its youthful and adult population. Richmond cannot pay for its own rehabilitation. It, and many other war-stricken communities, believe that the nation as a whole has a distinct responsibility.

Richmond Must Know

Richmond cannot even complete the rehabilitation plans which it has begun to formulate until the federal government declares itself on a number of important questions.

Richmond's post-war population, its financial expectations, and its need for municipal services are largely dependent on what happens to the mammoth shipyards now owned by the federal government and operated by the Kaiser Company. What is the government planning to do with those shipyards when war needs are over? How long will large-scale employment be maintained? Will there be continuing federally financed employment in the shipyards after the war? On what scale? Will the yards be for sale or leased for private use?

The federal government must also make up its mind—and announce its decision—regarding the disposal of temporary war housing in Richmond. Will it be removed as promised in the Lanham Act? If so, will it be removed in the order proposed by the city? When will it be removed?

Private builders and private industry too must wait for these federal decisions. Much of the land on which public housing now stands constitutes choice sites for varied industrial and residential developments after the war. Moreover, if the units are allowed to remain they may be a threat to future home building and may undermine the values of existing private homes. The builders would also like to know when they can get the land, and on what terms.

Above all, of course, Richmond must know—soon—when, if, and how the federal government will provide financial aid to the city and to the school districts to construct improvements that will reestablish normal community facilities for the city's post-war population.

Prompt, constructive federal answers to these vital questions will send the city in the direction of the kind of peace for which this war is being fought. But uncertainty and inaction on the part of the nation which is responsible for Richmond's plight will leave the city a municipal cripple which has earned—but has not received—the consideration and aid that should accompany the Purple Heart.

Baltimore Votes $10,000,000 Highway Loan

"Franklin Expressway" under Consideration

APPROVAL at the November 7 election in Baltimore, Md., of a $10,000,000 highway loan, representing one-half of an enabling authorization of $20,000,000 passed by the 1944 State Legislature, may give impetus to the proposed expressway visualized on the front cover of this issue of THE AMERICAN CITY. This project is the major recommendation of the "Baltimore Arterial Report," submitted on October 10 to Mayor Theodore R. McKeldin and the City Council of Baltimore by a group of planners and consulting engineers headed by Robert Moses, Commissioner of Parks of New York City.

Asserting that "cities should be traversed, and only incidentally bypassed, the Moses report recommends construction of this "Franklin Expressway" across the city along the line of Franklin and Orleans Streets, at an estimated cost of $40,360,000, as the most practical solution of Baltimore's through and local traffic problem in the post-war period.

Under the plan proposed by the consultant the depressed Franklin Expressway would start from the proposed Washington Expressway at the southwest city line. It would have a six-lane divided roadway for mixed traffic, built on a much wider right-of-way through the large city blocks southeast of the Pennsylvania Railroad.

400-Feet Wide

Swinging east between Franklin and Mulberry Streets the right-of-way would occupy an area now covered by some of the worst slums in the city. The total right-of-way in this section would be more than 400 feet wide, including service roads.

The depressed roadway would continue through the business section south of Centre Street, just below the Washington Monument on Charles Street, rising from under Charles Street to become a viaduct crossing St. Paul, Calvert, Guilford and Holliday Streets, the Fallsway, the railroad yards, High, Hillen and Ensor Streets.

There it dips again into a depressed roadway under Asquith Street, and continues in a depression, with landscape slopes between Jefferson and Orleans Streets to a junction with Fayette Street.

The committee suggests that it be continued easterly as a limited access highway with flanking service roads to the city line.

The central mall of the expressway would be at least 10 feet wide. Each lane for express traffic would be 12 feet wide. The outside curbs would be flanked by 10-foot shoulders where disabled vehicles could be pulled from the stream of traffic.

Frequent service roads to the expressway would be 38 feet wide to allow for free movement of traffic, including busses, with a lane eight feet wide for parking of automobiles. Sidewalks along the service road would be 15 feet wide.

Promenade System

There would be a continuous path and promenade system on both sides of the parkway between the city limits. In the section between the service roads, the promenade would be built on the tops of the slopes and continue over the viaduct on sidewalks.

All recreation areas would be liberally supplied with benches.

The frequent bridges in the outlying sections of the city and those crossing the expressway—either for traffic or pedestrians—at intervals of a few blocks in the section beween Central Avenue and East Avenue would be either reinforced concrete with stone facing, or steel structure supported on masonry abutments.

Gas Station Planned

There would be a gas station either at the Pennsylvania Railroad right-of-way at the west end of the project or east of Fayette Street. The City Bureau of Highways would be responsible for the upkeep of the roadway and the Park Board and Department of Recreation for the parks and recreation areas.

The entire central roadway would be lighted by high mounted luminaries on steel poles and the service roads by conventional street lamps. Direction signs would be large, legible and as simple as possible. White letters on black backgrounds are recommended.

Lanes for slowing down or speeding up would be provided at the accesses to the expressway to allow cars entering and leaving to accommodate themselves to the speed of the traffic. A speed limit of 35 miles an hour was recommended by the committee.

Slum Clearance

The report proposes that at least 25 percent of all the incidental property acquired . . . be developed for park or recreational purposes. It stresses the possibilities for slum clearance and the incidental need for housing:

"The Franklin Expressway construction will actually clean out a large number of dwellings that are unfit for use and many others that are substandard. . . . An inspection of the route on foot, making all the necessary detours through the alleys, is sufficient to convince fair-minded people of the need for cleaning up these slum areas."

Problem of 19,000 Persons

The report conceded that the work will "require the elimination of some good buildings," but said "This is inevitable."

Tackling the problem of the 19,000

Urging the voters of Baltimore to approve the $10,000,000 highway loan, in the October issue of its magazine, *Baltimore*, the Baltimore Association of Commerce included this quotation from a statement by the Citizens Committee, of which E. Asbury Davis is chairman:

"Favorable action on this bond issue is not an indorsement of any particular plan. Whether the plan that is presented by the Moses committee be finally adopted in its present or in a modified form, or even if some other highway, bridge or tunnel plan should ultimately be decided on, the bond issue must be passed if Baltimore is to hope for any measure of progress in the solution of the traffic problem.

"The present condition is seriously injuring the city's growth and is costly, not only to individuals whose property suffers directly from blight but to the city government itself in the continuous deterioration of taxable values in the heart of the city.

"Another convincing argument in favor of the passage of the loan is that Baltimore must in any event rely, in large measure, upon contributions from the Federal and State governments, which are likely to be available only on a matching basis."

people who would be displaced by the expressway, the report admitted it "will not be a simple matter."

"Obviously, many of the present tenants will have to be rehoused in subsidized public projects. Temporary war housing could be used to house others for some time. Others could be accommodated in vacancies throughout the city. . . . It is safe to assume that at least 50 percent of those who are removed will be able to pay rentals high enough to support property without subsidy, or to purchase their homes . . . on the FHA plan."

The report said the proposed program would "be helpful in stimulating recovery, but with the deduction of land costs the amount expended for construction in each year is not great enough to justify much emphasis on this score."

Of the $40,360,000 estimated cost of the Franklin Expressway, $750,000 would go for detailed plans, $19,100,000 for land and $20,510,000 for construction.

The title page of this "Baltimore Arterial Report" carries the names of Robert Moses, director; W. Earle Andrews, Madigan-Hyland, and Parsons, Brinckerhoff, Hogan & Macdonald, consulting engineers; and Hawkins, Delafield & Longfellow, and Raymond P. McNulty, attorneys, all of New York. As "special consultants" the following are listed: Arthur E. Howland, Chief Engineer, Long Island State Park Commission; Nathan Cherniack, Traffic Engineer, Port of New York Authority; Carl Crandall, Chief Engineer, Finger Lakes State Park Commission; J. J. Darcy, District Engineer, New York State Department of Public Works; James F. Evans, Director of New York State Parks; John C. Riedel, Chief Engineer, Board of Estimate, New York City; Sidney M. Shapiro, Deputy Chief Engineer, Long Island State Park Commission; Ralph Smillie, Engineer of Design, Port of New York Authority; George E. Spargo, General Manager, Triborough Bridge Authority; Henry A. Strecker, Jr., Engineer, New York State Department of Public Works; Chester R. Blakelock, executive secretary to the engineering and legal consultants.

Tax-Limitation Warning

WITH many state legislatures soon to meet, it behooves municipal officials to be on the alert against tax-limitation laws which which would seriously handicap both national and local public services. The American Municipal Association sounds the following note of warning:

"Seventeen state legislatures have approved resolutions favoring a 22nd amendment to the Constitution to prohibit the federal governmetn from levying taxes in excess of 25 percent of any personal or corporate income except in time of war. According to Congressional leaders, if 36 states file such petitions, Congress has no course but to act as a clearing house for its formal ratification. Reduced to its simple terms, this amendment if ratified would either (1) destroy the national government or (2) force such drastic inroads by the national government upon the revenue sources of the states and cities as to create fiscal chaos. Municipalities fundamentally opposed to tax limitations cannot consistently support this movement."

Public Housing—Post-War

Municipal and Federal Responsibilities

EXPRESSING his firm opinion that "a public housing program must arise from the communities and not be imposed upon them," Commissioner Philip M. Klutznick of the Federal Public Housing Authority, in an address before the Citizens' Housing Council of New York on November 18, laid down three requirements for cooperation by the federal government in such a program:

1. No new public housing to be provided where existing decent dwellings can fill the need.
2. No public housing to be provided that will compete with private capital in its appropriate sphere.
3. A reasonable gap of from 15 to 20 percent to be left between the highest income groups served by public housing and the lowest income groups that good private housing can now serve.

"This still leaves a 'no man's land' which private capital is challenged to meet," the Commissioner said. "It gives utterance to our sincere hope that the ingenuity of private developers will be incited to reach further down to meet the housing need. Instead of wasting time forever debating about sub-marginal markets, it is high time that private capital and industry do something constructive about the marginal market."

Rehabilitation of Old Housing

Mr. Klutznick said that while the low-rent housing program under the U. S. Housing Act developed a workable pattern and produced locally-initiated housing for low-income families at close to minimum cost, the pattern can be improved and experience has shown where it can be made more efficient.

He pointed out that the U. S. Housing Act does not provide adequate subsidy to permit the rehabilitation of old housing for low-income families. While such a method, he said, will not produce a large volume of housing, it is a tool that should be used to the extent that it does not perpetuate structurally inadequate buildings or bolster up run-down neighborhoods whose recoupment would be contrary to the public interest. A sound rehabilitation program, he said, should be based on the following principles:

1. Existing buildings should be used for low-rent housing when feasible in lieu of new construction.
2. Loan and annual contributions should be provided to public housing agencies when remodeling, repair, or reconstruction of buildings in blighted neighborhoods is involved.
3. Payment of annual contributions limited to 30 years, to reflect more closely the life expectancy of such housing.
4. Annual contributions of 4½ percent of development cost would be needed to make rehabilitation practicable.
5. Public housing agencies should have the option of purchasing or leasing existing buildings.

To Abolish "Tight Pockets of Poverty"

The Commissioner also stressed the problem of housing minorities, particularly Negroes, as one that communities must deal with realistically.

"The minority housing problem," he pointed out, "is not one of building alone. More than anything else it is finding space in which to build a home. We must face up to the problem of living space for minorities in our home communities and deal with it frankly and boldly."

Mr. Klutznick warned that slums cannot be abolished so long as large groups of people are forced into "tight pockets of poverty" and are denied "the opportunity to expand into areas that are necessary for decent living." He recommended re-study of plans for community development to make adequate provision in space for all groups.

Any expansion of public housing, Mr. Klutznick pointed out, would necessarily require additional authorization for subsidies. He also recommended improvements in the U. S. Housing Act to make possible 100 percent borrowing from private investors and to reduce to 45 years the present 60-year period during which the Federal Government is committed to pay annual contribution to insure the low-rent character of public housing.

The Federal Government, the Commissioner said, should carry only two primary responsibilities: to make clear to local housing bodies the basic requirements of the law and the regulations under the law, and to assume and carry out its obligations of service to the local authorities and the communities.

But in the local public body which carries the community's housing responsibility must rest "the vital spark of initiative and accomplishment, the understanding of the basic problem and the ability to tackle it soundly, steadfastly, and resourcefully," Mr. Klutznick emphasized.

Wartime Water Works Remodeling for Permanence

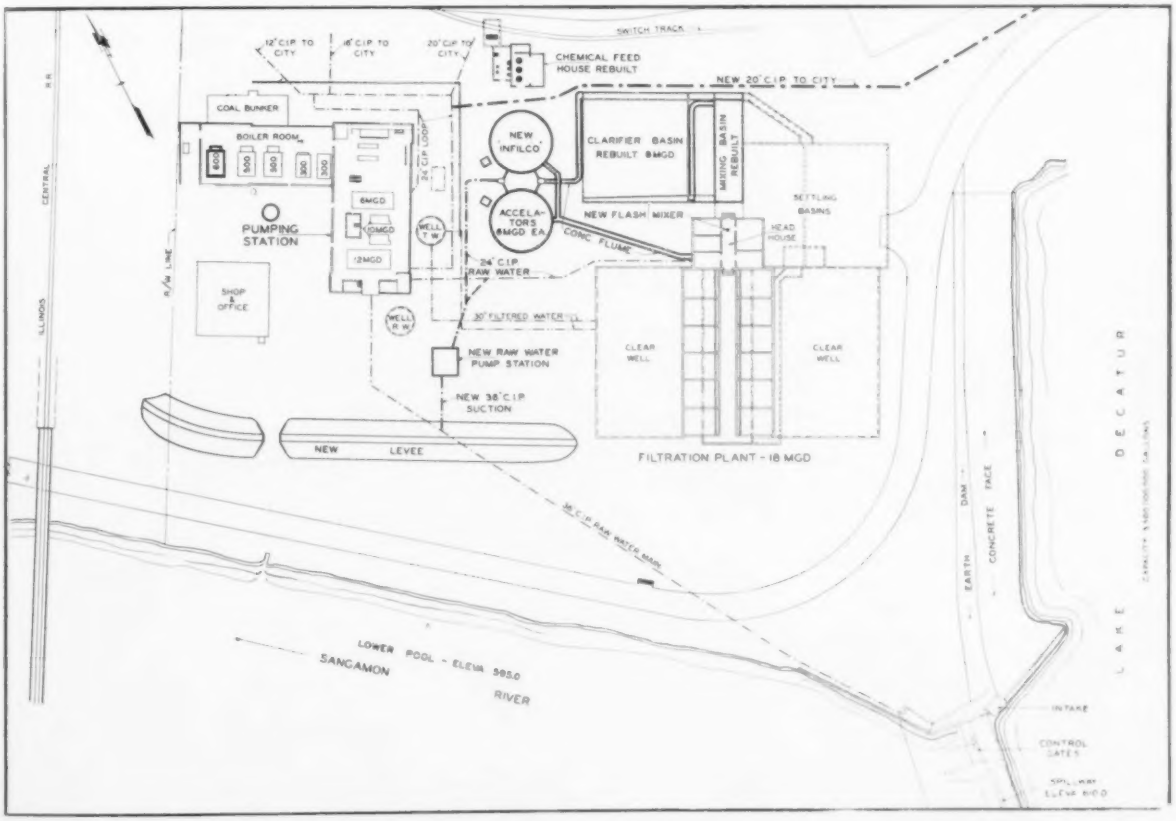
The critical demands of war have recently required Decatur, Ill., to double its water supply facilities. Brought about chiefly by expanded industrial activity, that shows every indication of remaining after the war, the improvements not only increase the supply but they also give the city water that is softer and better suited to domestic and industrial requirements. This is the story of what went into these improvements.

By G. M. EBAUGH
Chief Design Engineer
Warren & Van Praag, Inc.
Decatur, Ill.

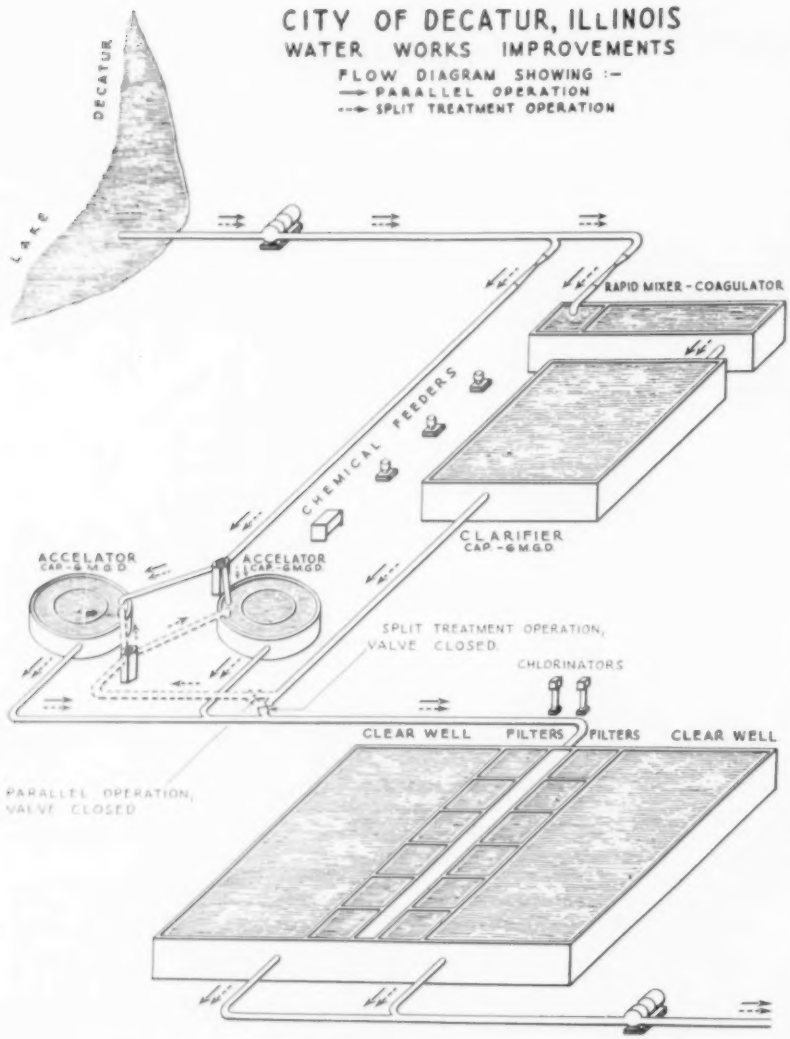
TO judge the water supply requirements of Decatur, Ill., by its population trends alone would be deceiving. In 1910 this thrifty midwestern city's census was 31,140. By 1943 it had grown to some 61,000; and by 1980 it probably will have reached 100,000. This, of course, is not unusual and represents a healthy, predictable growth of some 3 percent per year.

However, water consumption has not grown with equal smoothness. In 1940 Decatur's 12 thriving industrial plants used an average of 1.6 mgd; and in 1944 they are boosting this to average some 7.7 mgd making the total municipal water consumption around 12.5 mgd. Pumpage records indicate that by 1945 the demand will have practically doubled since 1935 and will have increased about 50 percent over 1943 requirements. These are the types of data that make life interesting for the water works official and his engineering consultant.

Prior to this war, Decatur's water works development had been as gradual and as sound as her population increase. Beginning in 1871 with a pumping plant on the bank of the Sangamon River, it expanded in 1874 with a small reservoir and later with a larger pumping station and a low dam to provide storage. In 1908-09, and 1910, the city built a new, larger boiler plant, pumping station and dam, and in 1914 installed a modern rapid-sand type filtration plant of 9 mgd capacity. In 1917, pumping capacity was reinforced by an additional Snow 12-mgd pump; and in 1922 the city built its present dam, Lake Decatur. By 1926 the population had grown sufficiently to require an added 9 mgd of filtering capacity and two new turbo-generators in the pumping station for various municipal power uses. In 1932 two new 10-mgd turbine-driven centrifugal pumps were installed to increase the total pumping



The general layout of the Decatur water treatment plant after remodeling. New units and piping are indicated by the heavier lines.



The new units added to the Decatur Water Treatment Plant

capacity to 38 mgd. And in 1935 two new 500-hp high pressure steam boilers were installed along with a general improvement of the distribution mains. A new 600-hp boiler is now being installed for additional steam capacity.

The water supply itself has its source in the attractive Lake Decatur and consists of an earth dam and concrete spillway across the valley of the Sangamon River. The spillway, approximately 25 feet high and 480 feet long, has a crest at elevation 610 (sea level datum). Earth wings with concrete face-protecting slabs extend from each side of the spillway and have a crown elevation of 632. The lake measures 13 miles long by 0.5 miles wide, drains a watershed of 906 square miles, and had an original storage capacity of some 6.4 billion gallons, dropping to an estimated 5.5 billion gallons at the present time because of silting. Based on past performance records this should be adequate to meet even greater than present peak loads.

The 1944 remodeling to meet these increased industrial demands includes the construction of a low-lift pumping station, the rebuilding of the present mixing basin, clarifier basin and lime house, and an installation of two new up-flow type softening and treatment units as well as miscellaneous arterial feeder mains ranging in size from 16 to 20 inches in diameter. These improvements are breaking the bottleneck in the present water works system by providing a minimum capacity of 18 mgd. To see how they fit the existing facilities let us look at the method of water treatment that had been in use. Prior to the construction of the new improvements, water entered a baffled mixing basin through the action of low-head centrifugal pumps. In this mixing basin it received both lime for softening and alum for settling. After mixing, it flowed to a clarifier basin where the greater part of the sludge formed by the chemicals was removed by the clarifier mechanism. From the clarifier basin, the water entered settling basins where further chemical reactions took place precipitating additional sludge. The water then was sterilized with liquid chlorine and ammonium sulfate and passed through the rapid sand filters to a clearwell storage. From the clearwell, the treated water was pumped to the distribution system by steam power.

The distribution system consists of approximately 116.5 miles of cast iron, lead jointed water mains fairly well gridironed throughout the city with the larger mains feeding the principal mercantile district.

Old Treatment Process

The original mixing basin measured 119 feet long and had four channels, 4 feet wide and 17 feet deep, with cross baffles provided at intervals to produce the mixing turbulence. At a 9-mgd rate the basin had a retention capacity of about 36 minutes.

Likewise, the 85-foot square clarifier had a retention period of about 1.2 hours and a surface unloading rate of approximately 0.87 gallons per square foot per minute when handling a flow of 9 mgd.

The settling basins have an available storage capacity before the filters of approximately 100,000 gallons or a period of 16 minutes at 9-mgd rate.

The original filters had a rated capacity of 1.5 mgd each or a total capacity of 18 mgd. They are in need of new sand and gravel, as the filtering media is badly coated and cemented by the lime sludge which is carried over from the settling basins because of the high rates at which the plant is operated.

The clearwell combined storage capacity is approximately 2.8 mg to the overflow elevation but fluctuating pumping rates keep the available storage to approximately one-half this.

With the exception of the filters, the present treatment plant should be operated at a normal rate not to exceed 6 mgd, but the demands of the city for water make it necessary to operate at a large overload capacity.

Treatment Works Additions

The rehabilitation and enlargement of the water treatment facilities to meet the increased demands just constructed include:

(1) Installation of a new American Well Works electric-driven raw water pump of 12 mgd capacity in a separate

building. This new pump is connected with the present 36-inch main running from the lake intake to the present pumping station. Adequate space is allowed for additional pumps to be installed in the future.

(2) The old mixing basin, shown in the accompanying photograph, was rebuilt by removing the central channel walls and by the installation of mechanical flocculating and rapid mixing equipment to provide a denser lime and alum sludge and consequently, a more rapid precipitation in the clarifier. The clarifier basin was also repaired.

(3) Two Infilco Accelators, for the purpose of rapid clarification and softening, were installed. These high rate, upward flow units provide a maximum of capacity and a minimum of space requirements and deliver a clear effluent of low turbidity that can be discharged directly to the filter beds. Each unit is 54 feet in diameter and each has a capacity of 6 mgd. The units are arranged to operate either in series, parallel, or as split treatment.

Because water from the Sangamon River is turbid, with the amount of turbidity constantly changing and difficult to anticipate, it was decided after extensive investigations and comparisons that the Accelator would best meet the demands and would take a minimum of space in the already overcrowded water-works site.

With this type of equipment, chemicals are added and chemical reactions take place in the bottom of the tank in the presence of previously formed sludge or slurry and the water rises through a secondary mixing zone in a central tube and overflows leaving the slurry behind. The clear water which has passed up through the two mixing zones is now soft and clear enough to need no further sedimentation.

Excess sludge solids are removed by automatically timed valves.

(4) The water to be treated has a normal hardness of approximately 300 ppm of which some 70 ppm is noncarbonate. Normal turbidities run well below 200 ppm, but because of the character of the watershed and its clay soil, flash turbidities of between 2,000 and 3,000 ppm are frequently encountered. To satisfactorily handle these high turbidities, special care was required in the design of the settling and softening units to prevent the carrying over of colloidal clays.

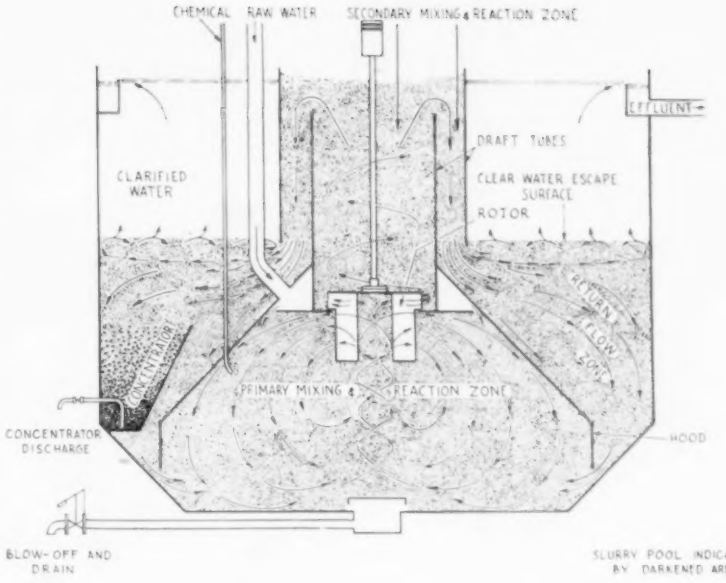


Diagram of the Accelator's action in treating water

(5) Chemicals used for the treatment include alum, lime, carbon, ammonium sulfate, and chlorine. The present lime house and its equipment are being rehabilitated and additional chemical equipment has been installed. New equipment includes an automatically controlled gravimetric feed lime slaker; two alum dry feeders with proportional flow controls; one ammonium sulfate dry feeder, one activated carbon feeder, all furnished by Infilco, Inc., and two Wallace & Tiernan chlorinators.

A comprehensive system of electrical ducts and wiring together with a 24" Republic venturi meter with Republic flow meters and transmitters, gauges, and indicators, make central control possible.

(6) A small earthen levee has been constructed to protect the pumping station from high water stages.

Since the water distribution system is of the direct pressure type, feeder mains become smaller the farther they extend beyond the pumping station; also the highest ground elevations in the city are near the points of greatest water demand. Due to this combination of circumstances a heavy feeder main was required to convey large volumes of water to the points of use, as the old system of feeder mains was totally inadequate.

The arterial feeder main, as installed, had 2.3 miles of 20-inch pipe, 0.88 miles of 18-inch pipe, and 0.57 miles of 16-inch pipe and required

(Continued on page 117)

This mixing basin was rebuilt by removing the central channel walls and by the installation of flocculating and rapid mixing equipment.

Density Currents Make a Difference In Activated Sludge Settling Tanks

IF you are designing or operating a settling tank for an activated sludge plant, you will be helped a great deal by a knowledge of the part that density currents play during the settling period. This was emphasized by Norval E. Anderson, Engineer of Treatment Plant design for the Sanitary District of Chicago in a paper delivered recently before the Federation of Sewage Works Associations at its annual meeting in Pittsburgh.

A density current, Mr. Anderson explained, is a gravity flow produced in one fluid by another fluid of slightly greater density seeking the lower level. The mixed liquor of an activated sludge plant is particularly prone to have this characteristic. Since it apparently is such an intimate suspension of flocculent solids it acts as a liquid of greater density, plunging to the bottom and flowing along the bottom until deflected upward by some obstruction such as the side of the tank, thereby inducing a counter current in the upper levels back toward the influent.

One of the final settling tanks in use in the Sanitary District of Chicago. The tank, not in use, shows the center influent and the effluent trough supported by cantilever brackets extending out from the side wall.

Dimensions

Mr. Anderson's finding indicated that these density currents imposed definite limitations on the design of settling tanks if the designer expects to have them operate at optimum efficiency. In his opinion, the dimensions should be limited as follows:

For circular tanks with center inlet, the radius should not exceed 5 times the side-water depth.

For rectangular tanks the length should not exceed 7 times the depth.

The depth below the effluent weirs should not be less than 10 feet to avoid disturbance caused by the collector mechanism and density current; nor less than 12 feet if the weirs are located at the upturn of the density current.

Baffles on the inlet do not particularly help the quality of the effluent, Mr. Anderson stated, basing his opinion on the results of tests of more than 25 different arrangements. A possible exception is that of a baffle extending above the water surface and about 3 feet below it for the purpose of submerging light solids which would otherwise float across the tank surface to the effluent weir. Inlet locations also were studied for circular tanks. The center inlet produced an effluent with less solids than any of five types of inlet tested.

Regarding effluent weirs, Mr. Anderson stated that in his opinion the allowable rate depended on their location with respect to the upturn of the density current. Weirs located away from this upturn current might have a rate of as high as 20,000 gpd per foot of weir, while those within the upturn zone will have a maximum capacity of only 15,000 gpd per foot.

This would limit circular tanks with center feed and peripheral effluent weirs to a maximum diameter of about 80 feet, he pointed out. However, experimental studies had indicated the economy of a circular tank of larger diameter with the effluent trough carried on cantilever brackets from the walls. This design was adopted by the Chicago Sanitary District, but the war has delayed completion of any units and no performance data are yet available. Experiments with effluent weirs directly above the inlets gave poor results. However, test results in a rectangular tank gave good effluent with weirs only 7 feet from the inlet.

Draw-off Analysis

Sludge draw-offs also came under careful analysis and Mr. Anderson pointed out that the freshness of the return sludge is determined by the rate of sludge draw-off rather than the tank design. A location near the tank inlet, he feels, is preferable because most of the sludge is deposited near the inlet. Most plant operators carry as little sludge as practical in the final tanks and the greater part of the sludge movement is hydraulic flow induced largely by the density of the sludge, the chief function of the flights or blades being to prevent adherence of the sludge to the bottom of the settling tank.

Mr. Anderson questioned the value of placing the sludge draw-off point at the effluent end of the tank, as is being done at the New York Bowery Bay plant. Although the intent of the design is to allow the density current to draw the sludge along the tank bottom, he finds that these currents have little effect in moving the sludge after it has reached a concentration greater than the mixed liquor.

Jones Presents Airport Plan

IN response to a resolution introduced by Representative Clarence Lea, Chairman of the House Interstate Commerce Committee and passed by the House of Representatives on June 23, the Secretary of Commerce, Jesse Jones, sent to Congress on November 28, a national airport plan prepared by the Civil Aeronautics Administration.

This plan recommends the construction of 3,050 new airports and the improvement of 1,625. Federal aid with matching funds from the states was proposed for financing the construction. An appropriation of $30,000,000 to cover the cost of surveys was asked. The communities where airports should be constructed and the number and classes of such airports are listed in the plan but it does not specify sites.

A System for Urban Redevelopment Without Subsidy

By ALFRED RHEINSTEIN

IT is generally agreed that the most direct and effective remedy for the chaotic and unwholesome state of urban blight is to raze the obsolete features in the afflicted section and, by constructing well-designed highways, parks and buildings, boldly create a new and healthy neighborhood.

My system for planning, financing, and constructing such a transformation largely by private enterprise without subsidy was first made public in July 1943. Its adoption on the most extensive scale yet contemplated has been recently proposed by Comptroller Joseph D. McGoldrick of New York City for a post-war redevelopment in Downtown Brooklyn, having a present assessed valuation of approximately $20,000,000.

The cardinal features in my system are:

1. Replanning an entire deteriorated area to produce increments in a neighborhood as a whole as well as in its subdivisions and thus provide the incentive to redevelop declining but still expensive property.
2. Acquiring the land by the city through purchase, through condemnation, or both.
3. By selling to the highest bidder the subdivided land so restricted and rezoned as to conform to the plan.

***AS AN ALTERNATIVE** to proposals now before Congress for federal aid to cities for land-acquisition for urban redevelopment, the President of the Rheinstein Construction Company of New York presents this system under which he believes that a workable partnership between the municipal government and private enterprise could be effective for the reconstruction of substandard areas in many cities throughout the United States.*

Other particulars were included so that the prime moves can be made without abuse or favor, so that the initiative of private enterprise in competition and the power of government can be freely used without surrendering either to special interests or to bureaucratic control.

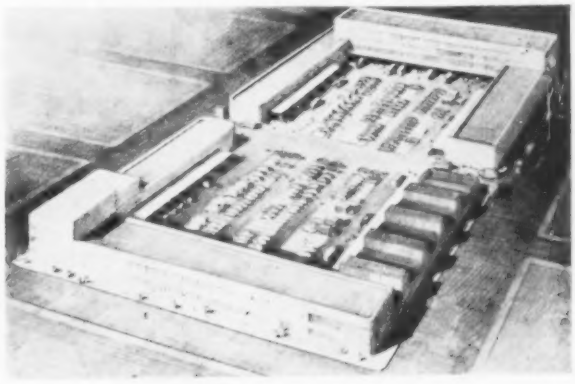
Some of those safeguards are essential to the system; others are suggestions whose use is optional or open to modification to suit particular cases. Space does not permit a full explanation of the details here.

Picking the Planners and Judging the Plans

Professional, civic, and industrial associations would prepare lists from which the Mayor would select two committees—one to choose the two groups best qualified for planning the redevelopment, and another committee to judge which plan is the better. The conditions of the contest would require that:

1. The Planning Commission shall
   (a) Designate an area for total replanning, which now embraces a cross section of community life—residences, industry, business, public institutions—where the structures for the most part are obsolete and depreciated, where business has declined and the neighborhood is losing its vitality with no good prospect of reviving under its own power.
   (b) Furnish the two contestants with all essential and pertinent data on existing conditions and draw up the terms of the competition.
2. Any number of candidates may submit their qualifications to the committee on selection, but only the two best equipped for the task shall be chosen to compete. Each competitor shall have in his group talent capable of successfully planning the area for structures, highways, and docks, for water, sewer, and electrical services, for the alteration,

One of a great variety of possibilities of the Rheinstein System for a residential development. The park and playground space in the center would be paid for and developed by the city and used by the public. It would also serve for light, air and a pleasant outlook for the multiple dwellings which border it in this example. The city might satisfy the annual debt service by collecting an equivalent amount in the form of an extra assessment on the surrounding property. Such financing would, in the author's opinion, permit the owners to meet the assessments and still have a profitable investment by virtue of the advantages in an over-all plan and pooling a part of yard space to produce the more attractive public park.



One of many ways in which the Rheinstein System may be applied to an industrial development. The outer section of the area is developed by private owners with factories, loading platforms and trucking space. The city retains the remainder of the interior for an access road and parking space for trucks and passenger cars. It would be entirely feasible to have a section of the interior enclosed for garage space for the factories and additional parking space on the roof. The city could sell the concessions to a company to operate that space and obtain a return sufficient, the author believes, to pay for the debt service on the capital expenditure as well as the maintenance and operation and probably some additional profit.

demolition, or moving of existing structures, for traffic flow, transportation, and parking accommodations, for zoning (for height, coverage, and use), for municipal finance and taxes, for industry and commerce—in short, planning for the entire physical development of the area and providing for every activity it may properly and profitably accommodate.

3. The contestants shall submit such working papers and explanations as may be helpful in revealing the reasons and considerations behind the design. The judges shall examine the supporting data and calculations for realism, practicability and completeness, and no submission shall be acceptable which is not upheld by predominant proof to show that the completed scheme when in operation will under reasonable assumptions show sufficient net income after ample amortization to produce a favorable return to the city, to the building investors, and to suitable occupants. A scheme to receive consideration shall also demonstrate that the redeveloped area will engage smoothly with its surroundings and that from a civic, commercial, and cultural standpoint it will be of benefit to the city as a whole.

Equalizing Opportunities

Wholesale replacement of costly urban property cannot be done promptly and profitably without following some method which will overcome handicaps and equalize opportunities. The system I propose for doing that, unlike others, needs no subsidy from the government, pays full taxes from the time the project is first undertaken. It procures many of its advantages and economies for residents and business, by making available to private buildings the light above and around public works, by substituting small publicly owned parks for private courts and yards, by providing tributaries to highways for off-street loading, and by other similar means of pooling common features with better results and on a larger scale than the individual could afford for his exclusive use.

This results from the neighborhood being planned as a whole in contrast to the planning of single plots by different interests. The architecture of neighborhoods is based on the same principles as is the architecture of buildings. The one plans for a subdivision of space and an arrangement of equipment within a building; the other plans for a subdivision of area and an arrangement of buildings within a neighborhood.

After the plan has been accepted and approved by the necessary government bodies having jurisdiction, the city, through its power of eminent domain, will acquire the land in sections as designated on the accepted plan. After the neighborhood plan has been made public for a reasonable period of time for general study and check, bids shall be called for by the city on the restricted plottages offered for redevelopment.

Open Spaces by Benefit Assessment

Under my system, buildings may face a common green of ample dimensions owned and operated by the city, but paid for out of a special tax assessment levied on the surrounding property. The debt service on the cost of the common green, or similarly pooled areas, would be based on a longer period of amortization and on a lower interest rate than private capital could afford. Being a reduced charge, shared by a number of property owners, the asssessment on each of the taxpayers would be relatively small. Benefits would reach beyond the surrounding buildings to the entire neighborhood and community.

By planning a neighborhood as a whole, individual plots are endowed with benefits from adjacent land. That increment partially offsets the high cost of acquiring urban land and demolishing most of the structures on it. Another benefit to urban dwellings, as well as a saving in annual charges, would be derived from city-owned areas frequently located and used for off-street loading, parking, or merely for light and air.

The city purchases the land which an owner would normally buy to provide light and air to his building and thus saves the owner the initial payment on approximately one-half of the lot customarily required, which in the several cases considered averaged 21 percent of the total investment. The city obtains funds for the acquisition and conversion into a public development from the sale of a bond issue, and it may pay the debt service on those bonds from a special annual assessment against the property owner, who derives his light and air from the public land. But as cities usually amortize such loans over 50 years, and as the rate of interest is lower on a good municipal bond than it is on a real estate mortgage, such special assessment would currently be around 3.34 percent, which is about one-half of what private capital extracts where the credit is prime and the period of amortization is shorter. A city might well judge that the increased taxes, intangible gains, improved highways, parks, etc., derived from transforming a bad area into a good one, would not warrant the extra assessment on surrounding private property. It might produce better results to eliminate the special assessment and thus increase the incentive for private enterprise to redevelop. Those are issues to be decided on the merits of individual cases.

Two Projects Compared

A large development planned for subsidy was compared to one planned under my system. The same structures and sites, the same construction costs and rentals were used. Under the Rheinstein System the owners would receive a higher rate of return on their invested capital and better light, air, and aspect; the city would collect 80.5 percent more in taxes, exclusive of the special assessments—besides acquiring, free of cost, parks and playgrounds.

In figures, a similar project would work out as shown in accompanying table.

This system covers all phases of the redevelopment of an urban area. However, it falls under the influence and regulation of the local Planning Commission and in many ways carries to fruition the work of that body. If followed, it should produce an efficient execution of the best obtainable plan for replacing with modern facilities and equipment sections of the city which have become outmoded and worn out. It puts green areas to work by spreading them among urban buildings in such a way that they not only pay for themselves but they reduce the cost per dwelling unit of surrounding land by creating a high use value. It uses the powers and position of government to acquire land and to restrict its use, to define objectives and establish equal opportunities, but it relies for performance upon free enterprise in competition.

FINANCES OF TWO PROJECTS COMPARED

	Subsidized Project, with No Increase in Taxes for 25 Years		Same Project under Rheinstein System, Paying Full Taxes	
Cost	$6,700,000		$5,260,000	
Income		$700,000		$700,000
Taxes	68,500		123,000	
Maintenance of common area	11,000		0	
Operation	211,000	290,500	211,000	334,000
Net return		$409,500		$366,000
Net return (in percentage)	6.1%		6.9%	
Special assessment		0		28,500
Net return		$409,500		$337,500
Net return (in percentage)	6.1%		6.4%	

1944 *Airport for suburban residential area, designed by Alfred Majors of Farrar & Majors, associated with Hoener and Hubbard, Associated Architects. Design furnished through courtesy Parks Air College, East St. Louis, Ill.*

Municipal Flight Strips

By J. D. MILLAR
Deputy Minister of Highways
Province of Ontario

IN writing of Municipal Flight Strips one must discuss something existing chiefly on paper and concerned with the future of aviation. Flight strips have been suggested from time to time and a limited number have been built in the United States and other countries largely in the form of narrow emergency fields adjacent to public highways. It has been suggested that highway and airway traffic go hand in hand. An efficient transportation system has been, and will continue to be, the foundation on which rests the structure of Canada's social and economic life.

The growth of Canada's transport system has been far from tranquil. No captain of a sailing schooner was ever convinced that the stagecoach and the steamboat were other than inventions of Old Nick himself; no locomotive engineer would ever admit that the motor vehicle and the aeroplane were other than annoying young upstarts in the transport field.

Mass production methods introduced for aircraft production will undoubtedly follow the pattern set by the automotive industry and the cost of light aircraft will be greatly decreased.

The aviation industry is facing the same problem today as was faced by the automotive industry in 1915. They had cars, but no roads on which to drive them. With a limited number of motor vehicles registered, the license fees were inadequate to pay more than a small fraction of the cost of building and maintaining suitable highways from town to town. *Highways were built as an investment by the various municipalities,* the provinces and the federal government, anticipating future revenue from the motor vehicle. In Ontario this investment has been highly successful. Excluding the cost of highway development for purely local needs (which was borne by the local municipalities), the province has spent approximately 500 million dollars on trunk highways and in the form of subsidies to local municipalities to cover intercity and interprovincial traffic needs. *The motor vehicle is today returning in license fees and gasoline tax an average of more than 35 million dollars per year, or 7 percent on the investment.* The motorist has at all times been willing to pay for improved highway facilities and there is every reason to believe that the light aircraft owner would also be prepared to pay for value received in the form of a greatly increased number of landing fields.

Strip for Landing

How can these landing fields be provided? Records show that at the close of the war, of some 580 cities, towns and villages in excess of 1,000 population, only 100 communities throughout Canada will have suitable landing fields. These may accommodate the large airmail and passenger services, but will fall far short of providing for the light aircraft owner or the small operator of feeder lines. I am frank to admit that I know very little regarding the technical standards required for airports. Railway and highway practice requires high right-of-way and terminal facility standards for trunk lines, while much lower standards are accepted on branch aircraft, and this would appear to be confirmed by the opinions of aeronautical authorities in the United States and Canada. If "flight strips" or narrow landing fields, some 500 feet wide and 2,000 to 4,000 feet in length, are sufficient for feeder lines, these seem to be the solution for the small community with limited finances. Started on this basis, as were the early highways throughout Canada, they can later be enlarged as the aircraft industry develops. Such airfields are very similar to a short section of a modern highway, substituting wider driving lanes and shoulders. In Ontario we are today building on 300-foot right-of-ways with 100 feet of pavement and shoulder width capable of carrying traffic. *Flight strip construction, therefore, would mean simply a modified highway design.*

In many other respects airport construction and maintenance are similar to highway problems. Grading, drainage, winter maintenance, signing, illumination, traffic control and even weather reports have counterparts in both highway and airway systems. The most practical suggestion for small landing fields is the "L" shaped air strip at the intersection of two public roads adjacent to a town. It can be adapted to local conditions and served by a combined highway-airway filling station. Minor mechanical repair service, restaurant facilities and taxi service can all be added to such a filling station, which will not at the start have to depend solely on aircraft trade. Hangars, paved runways and additional landing strips can be added as air traffic increases. In this respect might I add a word of caution, based on the difficulties which have arisen in highway design. It is just as important

(Concluded on page 119)

Wartime Sewage Problems Solved at Rollo, Mo.

A six-fold population increase and a 2A priority rating make adequate sewerage a real problem.

WHEN in December of 1940 a hoard of workers began to descend upon Rollo, Mo., to construct Fort Leonard Wood and swelled the population of this little town of 5,141 to six times that amount, it was to be expected that a town so utterly inadequate to accommodate so large an increase would have trouble. One of the most menacing of these problems from a public health standpoint was that of sewage disposal. The sewage treatment facilities at that time consisted of a plant of the Imhoff-trickling-filter type designed for 5,000 people at 100 gpd per capita, but since less than 5,000 were connected by sewers to the plant, it had been serving adequately.

When some 26,000 workers descended on the town and vicinity, the plant failed miserably to handle the sewage. To make matters worse this enormous increase occurred during the cold months of January, February, and March, 1941. The plant designed to handle 500,000 mgd was suddenly overwhelmed with a flow of 1.2 mgd. The digestion tank proved entirely too small to handle the load. Soon the tank started to foam and run over, the pH dropped to between 5 and 5.2, and though lime was used constantly it was impossible to bring the tank up to normal.

Something had to be done. City officials, realizing the seriousness of the problem, retained Russell and Axon as consulting engineers. Preliminary plans and estimates for both sewer extensions and a new sewage treatment plant were prepared and as soon as they were completed, an application was made to Federal Works Agency for help in building the extensions.

Our application was approved and the city was granted $206,753 for laying new sewer lines and replacing others whose sizes were insufficient to handle the greatly increased sewage flow. The sum of $127,227 was also allocated for the construction of a new sewage treatment plant.

A2 Rating

As soon as the application was approved contracts were awarded. The Martin & Reilly Construction Co., of University City, Mo., received a contract to build the sewer lines for $193,000, and Don P. Pray, of Monett, Mo., to build the sewage treatment plant.

Both of these contracts carried a priority rating of A2 and this rating proved to be quite a stumbling block. A great deal of equipment and material were needed and because this rating was insufficiently high to permit us to obtain all the needed supplies, the work did not proceed as rapidly as it might. Had it not been for the foresight of Mr. Pray, who made as many purchases of material as possible as soon as the contract was let, construction might have been held up to a much greater degree. As it was, many times the city felt frustrated in its efforts to get the materials necessary to carry construction forward at any reasonable speed.

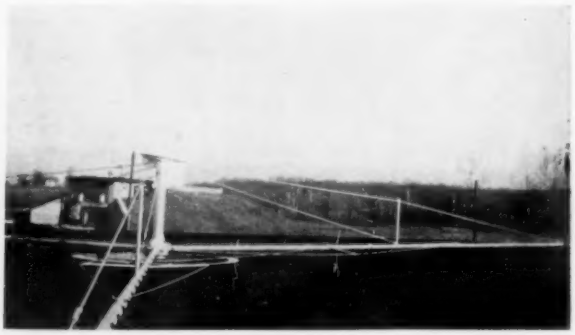
The original plant was designed as a trickling-filter separate sludge digestion type to serve a population of 5,000. The actual water consumption was 45 gpd per capita or 225,000 gpd total, but since the laterals and outfall sewers were laid in a valley whose soil permitted a high infiltration rate and the whole area had a high water table, the engineers estimated flow at the rate of 720,000 gpd of 1.11 cfs.

Because of this high infiltration they also felt it was necessary to provide a grit removal chamber. This chamber was designed for a velocity of 1 foot per second at 1.11 cfs. This grit chamber is provided with an overflow so that any flow in excess of this amount will be by-passed. Sewage passing through this chamber is regulated in its flow by a Parshall flume designed to hold down the flow through the chamber to no more than 2.22 cfs. The amount of sewage flow is measured by a Flo Watch meter furnished by Builders-Providence.

Primary Tanks

Passing from the chamber, sewage goes to the primary settling tanks which are designed on the basis of a three-hour retention period. Should the flow reach the 2.22 cfs, the maximum amount which the grit chambers will handle, the retention time will still be 1½ hours. This shorter retention period will still give considerably more purification than could be provided should everything in excess of the designed flow be by-passed directly into the stream.

The primary settling tanks are in



LEFT: *The grit chamber before it was put into operation. The control house is at the end of the chamber, the settling tanks to the right of it, and the trickling filter to the extreme right.* RIGHT: *Rollo, Mo.'s new trickling filter with the digester control building beyond.*

two units, each 16 by 37½ by 10 feet, side-water depth. Sludge is collected by Link-Belt Straightline equipment.

Effluent from the primary settling tanks goes to the dosing chamber of the trickling filter. This unit was designed for a flow of 600,000 gpd at the rate of 2 mgd per acre foot. It is 130 feet in diameter with 6-foot effective depth of filter stone. The medium used is a graded limestone that is tested by the requirement of the Missouri State Board of Health by the 20-cycle sodium sulphite method. The filter mechanism is furnished by the American Well Works.

The effluent from the filter goes to a final settling tank, a Dorr Clarifier 25 feet in diameter with an 8½-foot side-water depth and a capacity of 30,000 gallons, which provides a one-hour retention period.

Sludge from the two settling tanks is pumped by a 4-inch Chicago Pump Co. pump to the digestion tank. This tank was furnished by Yeomans Bros. Co. It was the unit which, because of the A2 priority rating, caused the city the greatest trouble. It is 30 feet in diameter with an 18-foot side-water depth and a capacity of 12,500 cubic feet, or 2½ cubic feet per capita. Here is how the problems worked out. After the contractor had the plant completed, with the exception of the heating and gas collecting mechanism for the digester, these, because of the low priority rating, were not available. The contract with FWA was terminated at this time and the plant was turned over to the city by the federal government to operate.

It was operated for eight months without heating and gas collecting mechanisms and in September 1943 the Yeomans Brothers delivered these units. After they were installed the digester was seeded with a heavy charge of digested sludge from the old plant. During the winter of 1943-4 the digestion tank failed to produce enough gas to heat the control house or the hot water coils of the digestion tank. Nevertheless, the operation was good and the sludge seems to be yielding enough more gas now to give promise of even more satisfactory operation.

Fred Hawthorne was Resident Engineer for FWA under the direction of Region VI's director, S. W. Anderson.

New Developments in Standpipe Construction

NEW methods of construction and design introduced in recent years in the water works field give promise of some sweeping changes in standpipe construction in the post-war era, according to Howard E. Bailey, Consulting Sanitary Engineer, Boston, Mass., in a paper presented at a recent meeting of the New England Water Works Association at Poland Spring, Me. Resulting from wartime necessity and accelerated industrial activity, the new developments are:

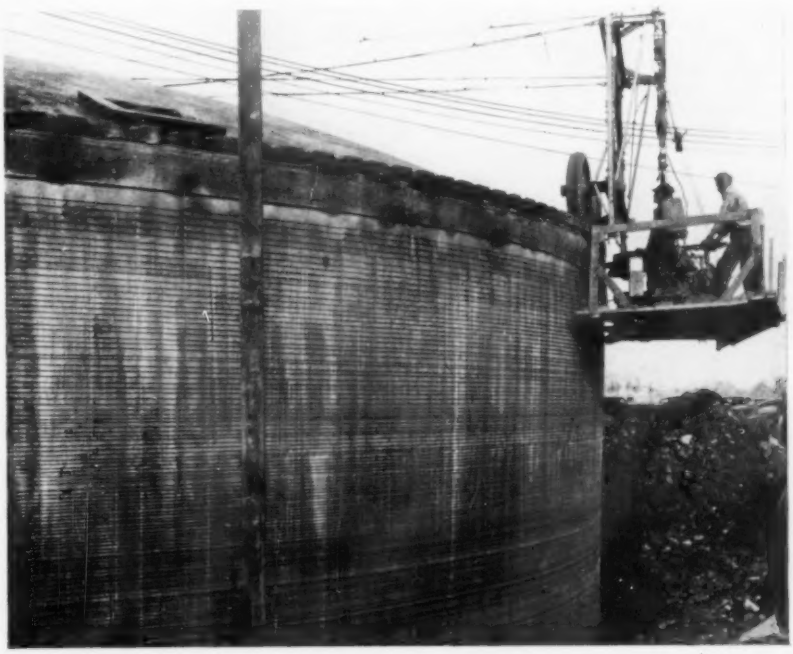
(1) Welded construction has taken precedence over riveting except for elevated tanks of small capacity where riveting is less expensive. During the past few years a new arc welding technique, using the "arc force" of the welding arc to obtain faster welding speeds and lower welding costs, has been developed. Currents as high as 450 amps are used and together with special rods, speeds almost three times those of standard welding can be attained. This development indicates more speedy standpipe construction at less expense.

(2) Because of the shortage of steel, spirally high tensile wire bound standpipes have been evolved. With this new form of construction the cylindrical shell formed with a cement gun includes embedded vertical reinforcing rods capable of pre-stressing. This shell is then bound by a wire wound with a newly developed machine riding on the roof of the standpipe and capable of spirally binding the standpipe under any given pre-determined wire stress.

This method of wire winding has also been used successfully to repair and re-stress steel reinforced structures which, because of shrinkage of the concrete and plastic flow, have lost the original pre-stress.

Savings in the use of the wire-wound pre-stressed construction result in a reduction in steel of approximately 10 to 1 over the conventional reinforced concrete design. New London, Conn., has recently constructed three standpipes with a total capacity of 5 mg using this method.

(3) Changes in the shapes of enclosing structures are being evolved to meet hydraulic conditions and new methods of assembly. The use of welding improves the smooth appearance of the structure. Concrete standpipes are being built increasingly with streamlined rings, flukes and other decorative devices, and Brookline, Mass., has a spheroidal-shaped standpipe designed to meet unusual hydraulic requirements.



The Preload Company's wire stressing machine applies strands of wire at the top of the water tank. Only two men are required to operate this machine.

Industry Plus Government In Post-War Housing

Necessity for a joint, all-out attack on the housing problem

IN the November issue of *Fortune* is an article entitled "Housing: the Why of Planning," by Guy Greer, wherein the author undertakes an objective analysis of the economics and politics of housing. Dealing with the problem from the dual point of view of the need of the national economy for new investment after the war and of the need of millions of families for a better living environment, the article sets forth the *pros* and *cons* of the current controversy. In fact, the case against the pre-war program carried out under the U. S. Housing Act of 1937 is presented with great forcefulness, although the principal criticisms are of its smallness in relation to the housing need and of its lack of attention to the requirements of good community planning. The concluding paragraphs of the article, under the sub-heading "Industry *plus* Government," are as follows:

We Must Revise and Revive

It is impossible at present, of course, to foresee all the long-range consequences of a revived and enlarged public housing program. But what can be expected if no such program is adopted? Probably a missing cylinder in the post-war economic machine—and an ill-housed mass. Since we can afford neither, our course of action is clear. With eyes wide open to possible dangers, we must revise and revive the USHA on a really adequate scale. We must do so as part of an all-out attack on the whole complex of problems centering in urban and rural housing and the replanning and rebuilding of urban communities. This we must do as a minimum program—or else surrender to the virtual certainty of wholesale unemployment and colossal waste of the very same productive resources that could provide every family with adequate housing and plenty of the other good things of life.

Specifically, we must clear the way and provide every possible incentive for private enterprise to begin building at a rate that will soon reach 600,000 to 1,000,000 new dwelling units a year. To supplement this, we must provide annually for building (by private enterprise, of course) from 400,000 to 600,000 units of public housing. Probably we could do so at a cost of $40 to $60 million a year added to the federal budget for, say, ten years, until the total subsidy reached $400 million to $600 million a year. The public outlay per family would range from zero at the top of the income group housed to perhaps as much as $200 at the bottom, but probably the average could be held below $100.

Research Needed

To hasten the modernization of building practice that has received a good start from wartime construction, we must have a great program of housing research. It must be comparable in quantity and quality with what has been done by the automobile industry. Funds must be got together for large-scale experimentation in many regions. Building materials, structural methods, equipment, industrial organization (or lack of it), how to make or build everything from cellar to roof—all these must be reexamined. Moreover, the industry needs guidance in the location and design of houses and surrounding facilities and in marketing, and it needs relief from the present confusion of antiquated building codes. Most of this research should be initiated and carried on by industry itself. Much of it, however, will have to be done in close collaboration with local governments and planning agencies, perhaps with the aid of state and federal agencies. Time is running short, and if industry goes on neglecting its part of the job, government may have to do it all.

Coming to Grips with Planning Problems

Then, too, so that the new houses shall fit into well-conceived over-all plans of their respective communities, planning everywhere must be hastened. Here the chief responsibility must rest with local and state governments. These must not only come to grips with planning problems, but must also revise and bring up to date the traditional and outmoded state-local legal arrangements that would prevent local communities from carrying out over-all plans if they had them. Somehow, moreover, local governments must have relief from the necessity of over-burdening real estate with taxes to meet mounting expenditures (e.g., for education, public health), which in large part should be of concern primarily to levels of government above them. And finally, the cities and towns must find ways to stimulate large-scale replanning and redevelopment of areas affected by blight and slum conditions. Financial aid may be required from state and federal governments. Bills are already before Congress for federal aid to local planning and for federal loans to facilitate urban redevelopment. Some of their provisions are highly controversial, to be sure; but some kind of decision on the measures proposed must be taken soon. If they are rejected other approaches to the problem must be sought.

Legally, the whole vast, comprehensive, and indispensable course of action is up to Congress and the state and local governments. But the biggest job of all is up to American industry. Is it anything to frighten a country able to turn out over $80 billion a year of war stuff on top of the highest civilian consumption in history?

Characteristics of Utility Systems

OF the 767 publicly owned utilities that are recorded in the eighth edition of the book, "Results of Publicly Owned Electric Systems," recently published by the Burns & McDonnell Engineering Co., Consulting Engineers of Kansas City, Mo.:

58 or 7.6 percent are competitive systems.
416 or 54.2 percent generate their own power.
278 or 36.3 percent purchase their electricity wholesale.
73 or 9.5 percent purchase a part and generate a part of their electrical energy.
149 or 19.4 percent use steam to generate their electricity.
203 or 26.5 percent use Diesel engines.
10 or 1.3 percent use hydraulic power.
14 or 1.8 percent use both steam and Diesel power.
12 or 1.6 percent use both steam and hydraulic power.
21 or 2.7 percent use both Diesel and hydraulic power.
7 or 0.9 percent use other combinations of power.
382 or 49.8 percent are entirely debt free.
422 or 55.0 percent owe 5 percent or less on the cost of their system.
468 or 61.0 percent owe 10 percent or less on the cost of their system.

In addition, 617 cities in this book were listed in the 1941 rate book. Of these:

156 or 25.3 percent have decreased their 40 kwh rate.
161 or 26.1 percent have decreased their 100 kwh rate.
172 or 27.9 percent have decreased their 250 kwh rate.

Design and Equipment of City Police Stations

Modern police station—women's corridor

By FOLGER ADAM
Penal Engineer, Joliet, Ill.

THE average police station provides accommodations for police officers on duty and prisoners awaiting a hearing. For the purposes of this article we shall eliminate those hybrid institutions commonly designated as "bridewells," "workhouses," etc., where short-term sentences are served. Their design and equipment is, of course, similar to county jails and prisons.

Most police stations must provide court room facilities, and while their design and arrangement is outside the scope of this discussion, it is necessary that court rooms and confinement quarters should be as closely connected as possible. The "Bridge of Sighs" in Venice is a classic illustration of how one medieval architect solved this problem.

The main problem divides itself into two headings, "Executive" and "Operational." Under Executive, space should be provided for Records, Fingerprints, Photographer's Studio, Officers' Lounge, Squad Room, Safekeeping of Prisoners' Property. Secure storage should likewise be provided for stolen and confiscated property.

On the border line between Executive and Operational departments, we have the modern "show up" theater. This feature is a valuable adjunct in the detection of crime and should provide a well-lighted stage with a back drop, plainly calibrated in feet and inches, and necessary seating for the witnesses who are attempting to connect the suspects with current crimes.

Where space and funds are limited, a little architectural ingenuity combines this feature with the Court Room, but such dual functions require cooperation between the judge and police officers.

Operational Problems

Most of the problems of design and equipment occur under the caption of Operational. Most important of these is segregation. One of the basic principles of modern penology is the classification and segregation of prisoners so that the best are not contaminated by the worst.

This problem can be classified as follows:

1. Adult Males
2. Juvenile Males
3. Adult Women
4. Juvenile Women
5. Insane.

Classification 1—Adult Males

The majority of the prisoners fall into classification 1, but it again must be subdivided and separate quarters provided for each sub-class as follows:

(a) *Drunks and vagrants.* These weaklings, unfortunates, and victims of circum

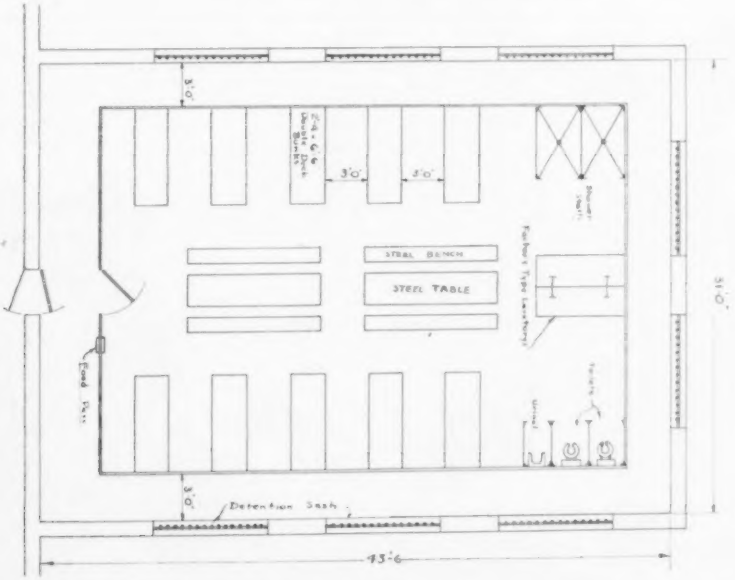


FIGURE A. *Bulk per type dormitory for 20 male adults*

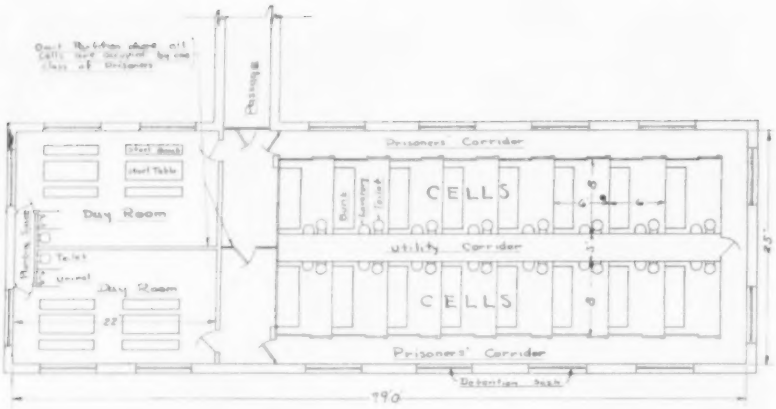


FIGURE B. *Cell block with day room arrangements. For 16 prisoners*

stance are not criminal per se, and except for "violent drunks" they may be confined in the familiar "bull pen" or "tank," which is in reality a dormitory. Figure "A" suggests how such accommodations may be arranged to provide easy supervision. Local factory ordinances will tell the architect how many toilet fixtures of each kind should be provided for the anticipated population of each dormitory. Ventilation should be excellent and the concrete floor should be pitched to permit frequent and easy hosing. Confinement being in most cases only over night, medium security equipment is sufficient. Gratings may safely be made with mild steel vertical bars 5/8-inch diameter spaced 4 inches on centers passing through 5/8 x 2 1/4-inch flat horizontals spaced 12 inches on centers. Arc weld each intersection in three spots on the underside of the flat bars and keep the gratings up 3 inches above the concrete floor. Grating sections should not be over 6 feet wide and the frame bars should be allowed to run down into the concrete for at least 3 inches, with a bearing plate at the end. All portions below the first horizontal cross bar should be hot galvanized.

Ceiling heights should not be less than 8 feet; 10 feet or even 12 feet is better. When the ceiling height is more than 8 feet, use a grating ceiling on the cage of the same construction as the side gratings. (Fig. A)

Beds. Sleeping accommodations for this class of prisoners are always a headache for the operating officers. A spirit of wanton destruction that is difficult to explain causes bedsteads to be bent and broken, mattresses to be set on fire and fouled. Nothing must be provided that can be wrenched loose and used as a weapon by a belligerent prisoner. Such requirements translate themselves into a substantial welded construction of steel angles with bunks having 1/16-inch thick sheet steel bottoms, perforated with a few 1-inch holes to permit brushing out refuse when the mattress is removed. The legs should be provided with anchor plates and the entire structure set in place before the finished concrete is poured. The lower 12 inches of each leg should be heavily galvanized.

Mattresses are a more difficult problem. Comfort must be to some extent sacrificed to secure long life and fireproof qualities. A fairly satisfactory answer is a heavy canvas sack, boxed at the sides and filled with mineral wool. Day rooms are not required for such dormitories. Overnight prisoners are the rule and a steel table with benches (also fixed in position) will provide sufficient recreation facilities.

(b) *Thieves, brawlers, sex offenders, and crimes of violence.* Such prisoners are best cared for with individual cells, and the "inside" cell block (Fig. B) is the best answer. Concrete cells with 4-inch monolithic walls and ceilings and steel grating fronts are more permanent, sanitary, and less noisy than all-steel cells, but where placed on upper floors the architect may find that the lesser weight per cell of the latter construction may be a determining factor.

Cells must, of course, be provided with individual toilets and lavatories. The beds should consist of steel brackets fastened to the side walls and as these prisoners are confined for longer periods of time, a heavy prison type spring may be substituted for the steel "pans" of the dormitory.

Cell fronts may safely be made of the same sizes of material mentioned under "bull pen." In choosing material for this purpose it should be borne in mind that if properly searched before confinement, escapes are few and far between. But bars of less size than those mentioned can be bent and will not stand the wear and tear of institutional use.

At this point the "gang lock" enters the picture. Most modern cell doors are of the sliding type, and many devices are manufactured to permit the simultaneous locking and unlocking of the cell rows. Some of these devices permit the selection of individual doors and their movement from a control cabinet located so that the officer does not come into direct contact with prisoners.

In selecting such a device it should be borne in mind that the more automatic the device the greater the cost and the greater the upkeep. Modern cell blocks carry with them "day rooms" for feeding and recreation purposes. So equipped, the average cell block is emptied during the day and reoccupied at night. Therefore, a gang device that will unlock all of the cells simultaneously is a convenience. If the cells are likewise provided with an individual lock that permits the officer to isolate any cell from the gang mechanism, then the case of the occasional unruly prisoner who cannot be granted recreation privileges is provided for.

Classification 2—Juvenile Males

Every police officer knows that tender age is no guarantee of good deportment, and that many of these teen age offenders are more hard boiled and destructive than adults. But the public seldom realizes this; therefore, in designing their quarters the steel hand must be hidden by the velvet glove. Small individual rooms are best, with outside windows protected by heavy detention sash. Standard types of steel prison bunks and doors provided with food pass, with observation panel and heavy prison hardware should be used. Glazed tile walls, if reinforced with steel and concrete cores, are satisfactory. Avoid plaster finish. The value of "day rooms" for juveniles is debatable. While

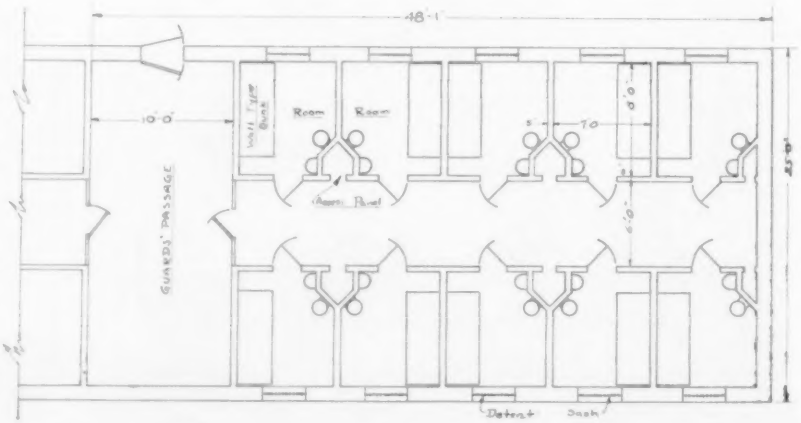


FIGURE C. *Women's and/or juvenile quarters*

exercise and some recreation must be provided, segregation is usually dictated by age alone. Some of these "apples" are so bad that they will quickly spoil the entire barrel. A decent boy is better off with a few days isolation than to be thrown into contact with crime-experienced youths of his own age. (Fig. C)

Classifications 3, 4, 5

3. *Adult Women Prisoners.* This problem is akin to that of juvenile males, except that women are seldom destructive. Segregation is usually based on sex and age, but prostitutes cannot be thrown into contact with a housewife who has been aggravated into knifing her husband. A little less "steel" and more "velvet" in design and equipment will care for this class.

4. *Juvenile Women.* Just another variation of the handling of the adult women. Strict segregation, of course. An understanding and motherly matron is of more value than design and equipment.

5. *Insane Men and Women.* In the past this occasional problem has been met by providing one or two padded cells for each sex. Unfortunately, such cases delight in destruction of equipment and the committing of nuisances that quickly render "padding" (hard to keep clean at best) unsanitary. Insane cases should be under a physician's or psychiatrist's care and in the short interim of their confinement in a police station they may best be taken care of in a vacant female or juvenile room, using straightjacket and sedatives for violent cases.

Other Requirements

Sick or Injured Prisoners. Outside of "first aid" the police station should not be asked to care for ill or injured prisoners. Their proper place is in a "detention ward" in a local hospital. Unfortunately, however, such facilities are seldom available except in large cities. Perhaps the best answer for the smaller city is to utilize one of the women's or juvenile rooms, temporarily equipped with a hospital type bed.

Feeding. If the average station population is too small to make it economically possible to employ a decent cook, then the operating officers must take chances with "cafe" food cooked outside and sent in. I say "chances" because there is always a possibility of tools and weapons being concealed in food. If cooking is to be done in the station, the architect has the usual problem of providing kitchen space and equipment. Sturdy slop-proof metal trays for food must be provided. Such trays should provide separate spaces for soup and at least three other varieties of food. Food passes to cells; day and detention rooms must be of size suitable for the trays used.

Visitors. There must be consultation rooms for attorneys and their prisoner clients. Several small rooms are more practical than one or two huge ones. They should be located so that they lie between two corridors, one accessible from the main station room for attorneys, the other connecting with the cell facilities for prisoners. To avoid the possibility of a prisoner assaulting his attorney and escaping through the outer corridor, it is wise to divide the consultation room with a grille. Visiting with friends and relatives should be conducted through speaking and observation panels that completely isolate the prisoner from the visitor.

Windows. Prison bars no longer flaunt their purpose in the face of the passing public. Heavy detention sash should guard every window in the confinement quarters. For the dormitory room mild steel will do, but additional security can be had by using the same section with tool resisting inserts in the cell blocks. For women's and juvenile rooms mild steel is sufficient. However, every window should be screened and the screens frequently inspected for holes. If any of the confinement quarters are lower than the third story or if adjacent buildings are of equal height and close by, then heavy close mesh screen cloth should be added to prevent the perforation of fly screens by missiles containing contraband.

Lighting. The problem of lighting prisoners' quarters is important, space permits only a brief statement of the problem:

1. Fixtures must be tamper proof.
2. Fixtures must be accessible for maintenance.
3. Light must be sufficient for prisoners' needs and also for guards' inspection.
4. Switches must be accessible to guards, inaccessible to prisoners. Cell lights are placed so that they may be serviced from the utility corridor. Corridor lights should be sunk flush in the ceiling.

This brief article is intended to high light the main items of design presented by this problem. Discussion between architect and police officials should work out many important details herein neglected.

Rising Costs Predicted for Post-War Building

SEVERAL factors appear to point to rising construction costs and to a generally higher price level for the post-war period as compared with pre-war. However, post-war inflation on the scale that obtained in 1919 and 1920 seems unlikely. These observations are made by Thomas S. Holden, president of F. W. Dodge Corporation, in a study entitled "What About Post-War Prices?" just published by his organization.

An analysis of price behavior before, during and after World War I and before and during the present conflict points specifically to three factors brought into play by both wars which spell rising prices after this one.

Mr. Holden defines these factors as follows:

1. Wartime spending by government has spread purchasing power widely, has increased savings and the volume of money in circulation, and widened the potentialities of credit.
2. Government debt has increased, and in enormously greater amount this time than in World War I.
3. Wartime limitations on civilian construction and on production of civilian goods generally have built up enormous potential demands.

These three factors came into play during both wars, but there exist today certain differences on the side of curbing inflationary tendencies in the post-war period.

Says Mr. Holden:

"Price controls have been much more effective this time. Business executives and people generally are more keenly aware of the dangers of rapidly rising prices than they were 25 years ago. At various times in recent years they have exercised considerable self-restraint in the face of price inflation threats. The government will probably seek to avoid drastic deflation and widespread unemployment likely to result from it. Statistics on current price trends, current production and inventories will be more widely available and more widely understood than in the years 1919 and 1920.

"The two wars we are fighting this time will not end simultaneously. There will be a partial reconversion to a peacetime economy in the period between V-E Day and V-J Day and gradual, rather than sudden, removal of wartime controls. Government must procure adequate materials to finish the fight against Japan, to support armies of occupation and, possibly, to aid in some measure reconstruction of devastated countries.

"Productivity of American industry and its adaptability to quick shifts in production schedules are much greater than in World War I.

"These differences are on the side of curbing inflationary tendencies in the post-war period. Actual price behavior will depend in large part upon the behavior of the spending public. An early spending spree could run prices up very rapidly.

"Nevertheless, post-war behavior of prices in general, and of construction costs in particular, will be of vital importance to early and sustained revival of construction activity. The situation will call for wise policies and reasonable self-restraint on the part of producers and distributors of materials and equipment and of skilled building labor."

POSITIONS AVAILABLE

Under this heading THE AMERICAN CITY announced last month that it would be glad to carry without charge brief listings of vacancies in municipal departments or agencies where residence requirements had been waived and where the vacancies would be held open long enough for such announcements to be of value.

This statement was accompanied by mention of such vacancies in Dayton and Akron, Ohio. Under date of November 27 Charles E. Coltrin, Executive Secretary of the Citizens Post-War Planning Committee of Akron, writes: "We have received a number of letters in reference to these positions and we appreciate very much you assistance."

If your city has any such vacancies for listing in the January issue of THE AMERICAN CITY, information received by December 26 will be in time for that issue.

County Catechism

Suggested by Tax Institute, Inc.

What is the county? The most universal unit of local government.

Where is the county? All over the United States, except in Baltimore, Washington, St. Louis, the twenty-four largest Virginia cities, Rhode Island, and Yellowstone Park.

How many counties are there? There are 3,050 independently organized counties and 10 other counties more or less tied in with city governments. In San Francisco, Denver, New Orleans, Boston, New York City,* and Philadelphia, county and city governments are to some extent consolidated.

How many counties does each state have?

Alabama	67	Nebraska	93
Arizona	14	Nevada	17
Arkansas	75	New Hampshire	10
California	57	New Jersey	21
Colorado	62	New Mexico	31
Connecticut	8	New York	57
Delaware	3	North Carolina	100
Florida	67	North Dakota	53
Georgia	159	Ohio	88
Idaho	44	Oklahoma	77
Illinois	102	Oregon	36
Indiana	92	Pennsylvania	66
Iowa	99	Rhode Island	0
Kansas	105	South Carolina	46
Kentucky	120	South Dakota	64
Louisiana	63	Tennessee	95
Maine	16	Texas	254
Maryland	23	Utah	20
Massachusetts	13	Vermont	14
Michigan	83	Virginia	100
Minnesota	87	Washington	39
Mississippi	82	West Virginia	55
Missouri	114	Wisconsin	71
Montana	56	Wyoming	23

What does a county do? It administers relief, builds and maintains highways, and provides schools, police and fire protection, hospitals, courts, libraries and recreational facilities.

How much money do counties spend? Over a billion and a half dollars a year. In 1942 the combined expenditures of the 3,050 counties in the United States were approximately as follows:

COUNTY EXPENDITURES: 1942

Relief	$ 393,355,000
Highways	304,830,000
Legislation and general administration	189,617,000
Schools	104,265,000
Hospitals	103,728,000
Judiciary	66,667,000
Police and Fire Protection	59,496,000
Correction	27,405,000
Health	19,500,000
Conservation of natural resources	15,927,000
Recreation	8,844,000
Libraries	5,254,000
Sanitation	2,904,000
Miscellaneous	42,722,000
Debt Service	273,265,000
TOTAL GENERAL EXPENDITURES	$1,617,779,000

Where does a county get the money to pay for these expenditures? From taxes collected by the county, state aid, charges for services, and special assessments.

What taxes does a county impose? Mainly property taxes.

* There are five counties in New York City.

Does a county ever go into debt? Yes, the counties had a total gross debt of almost two billion dollars in 1942. Vermont counties owed only $128,000, but New York counties owed $257,505,000.

How many persons are employed by counties? County governments employed 310,000 persons in addition to school employees in January, 1944.

Are counties efficient? Generally speaking, no.

Why not? Many counties are too poor and too small to be efficient units of administration. Some attempt to carry on functions which could better be administered by the state. Others should be administering functions now being administered by lesser political units, such as townships, independent school districts, and special districts. There are too many elected officials.

What can be done to improve county administration? In a few states, notably Virginia, the *county-manager* system of government has been adopted in several counties. The Virginia League of Counties has just voted unanimously to support a clinic at the University of Virginia for the improvement of county government in the state.

Consolidation of counties has been strongly urged for three decades, but so far only two cases of consolidation have occurred. Two counties in Tennessee united in 1919 and two in Georgia in 1931.

Functional consolidation, that is, county cooperation in jointly administering functions such as health, welfare or schools, has been advocated. Many states have authorized functional consolidation.

Reorganization of governmental structure, adoption of merit system, improved fiscal practices, and numerous other reforms are also advocated for counties.

Why aren't counties universal? Because a county government is not necessary in a large city. To attempt to have both involves duplication. Unfortunately, this fact hasn't yet been generally realized. Rhode Island rural government is administered by towns rather than by counties. Yellowstone Park is administered by the federal government.

Where does one learn about county government?

ATKINSON, R. C. "Principles of a Model County Government." *National Municipal Review*. Supplement, September, 1933.

BRANNEN, C. O. *Characteristics and Costs of County Government in Arkansas*. Fayetteville: University of Arkansas, 1937.

BUREAU OF THE CENSUS. *County Finances: 1942*. Washington, 1944: *County Employment in 1944*. Washington, 1944.

HARRIS, JOSEPH P. *County Finances in the State of Washington*. Seattle: University of Washington Press, 1935.

HECKART, SCOVILLE R. and KLEMMEDSON, G. S. *County Consolidation in Colorado*. Fort Collins: Colorado Agricultural College, 1933.

HUNTER, M. H. *Costs of Townships and County Governments in Illinois*. Urbana: University of Illinois, 1933.

KENTUCKY LEGISLATIVE COUNCIL. Research Division in Cooperation with State Planning Board. *County Consolidation*. 1937.

National Municipal Review. "County Government Number," August, 1932; October, 1934; and February, 1939.

WELLS, ROGER HEWES. *American Local Government*. New York: McGraw-Hill Book Company, Inc., 1939.

Business and Mercantile Taxes Increase Revenue of Pennsylvania Cities

A SURVEY of license fees collected by third class cities in Pennsylvania shows these municipalities levy several kinds of business and mercantile taxes for general revenue purposes, according to the American Municipal Association.

In 1942 these cities collected $138,631 from business and mercantile licenses. The following examples show the wide range of collections. Bradford collected 87 cents per capita in business and mercantile license fees; Easton, 78 cents; Harrisburg, 60 cents; Williamsport, 62 cents; Oil City, 58 cents; and Allentown, 57 cents. Cities low in per capita business and mercantile licenses include Sharon, New Kensington, Meadville, Lock Haven, Franklin, Farrell, Beaver Falls and Arnold—all 10 cents per capita or under.

Gross receipts taxes, one of the more common license taxes imposed by the cities, apply to all persons, firms and corporations engaged in any trade or occupation within the city. In Allentown the tax ranges from $2 on sales under $2,000 to $100 on sales over $200,000. Other cities reporting gross receipts taxes were Altoona, Bradford, Easton, Connellsville, Harrisburg, New Castle, Oil City, Sunbury, Williamsport, and York.

Allentown, Chester, Erie, McKeesport, and Wilkes-Barre have a tax on gas, water, steam heat and conduits, while thirteen cities reported a flat license tax of $100 on all utilities operating within the city limits.

Twenty-one cities levy a special license tax on street cars, taxis and buses. Ten of these cities license taxicabs at $10 a year. Rates in other cities range from $5 to $25. Twenty-one cities reported a special license or permit charge on dealers and distributors of food, milk or bottled drinks.

Thirty-five cities reported having special amusement taxes. Common charge for bowling alleys, game tables and pinball machines is $10. Most cities assess theaters at rates from $25 to $100, usually based on seating capacity. Of the 24 cities with license taxes on dances, most of them charge $1 per dance and license dance halls at $15 a year. Skating rinks are licensed at rates ranging from $25 to $100 a year.

Year-End Stock-Taking

By PHILLIPS BRADLEY

As the end of another reporting year approaches, City Halls large and small are turning are turning to the business of putting their records into print—for the people. The annual report is all too often relegated to routine repetition of last year's content and format. The report can—and should—be a major factor in building effective citizen interest in the work of City Hall. It deserves careful planning and preparation, for it the one channel for a general presentation to all the people of what those who manage the community's business have done—and plan to do.

Format Does Make a Difference

The influence of format on reader-interest needs no underlinings; the evidence is as universal as printing. Book jackets, magazine cover designs, the whole gamut of advertising, all suggest that those who want to get their ideas looked at by the reading public do not hide them under a bushel of drabness and detail. There is no reason why City Halls should ignore the experience of those who have less significant civic news to portray than that in the annual report.

Format begins with the cover. Good color and design cost little or nothing extra. Perhaps a cut or two will be necessary, but the additional expense can be more than saved at other points in the report and would be infinitesimal in any case in the budget for the year. What is needed is a dash of imagination in creating a cover which will attract attention—not repel it. The story of some major aspect of the year's work or an over-all view of the community's post-war program can be highlighted on the cover and so catch the interest of the reader. And there is no reason why City Hall should not use positive and varied color designs, not single-tone, neutral colors, in planning an appealing cover.

Good format does not end, of course, with the cover. The whole report deserves the same attention to making the report readable—and easily understandable to the citizen.

Attention has been called more than once on this page to the importance of effective illustrations. These may run all the way from "before and after" pictures of municipal projects to interpretive charts and graphs. One thing which is all too frequently missing in the annual report is an objective record of long-run municipal planning and action. Trends in income and expenses in the fiscal report changes in school population, past, present, and future, in the school report; completion records of long-range construction projects; these are only a few of the types of continuous reporting which make the citizen better informed, and so, better equipped to appreciate what City Hall is trying to do.

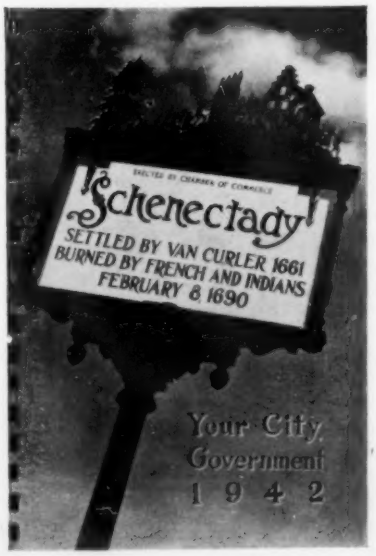
Nor does it do any harm to utilize pictograms and cartoons as interpretive devices. All recent experience—for instance, in the armed forces training programs—indicates that factual data are often better understood through pictures than words. In any community, any large City Hall staff, more than one individual with both the flair and the skill for this type of illustrating can be recruited for the job. If he or she is not already on the payroll, the cost for a month's service will not run high; many proficient citizens would willingly volunteer for such service.

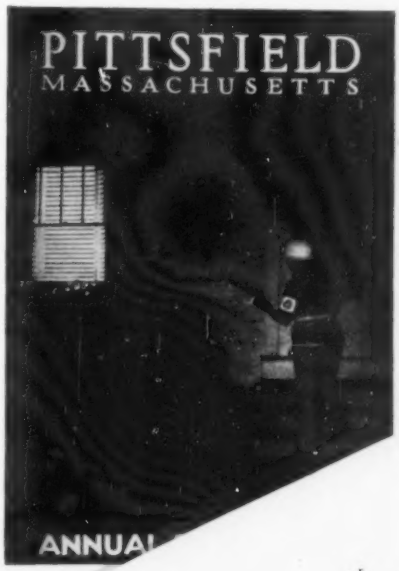
The arts and industrial-arts high school staffs—and students—will also produce more than one trained recruit. The value of this kind of contact between City Hall and the schools carries, incidentally, a high potential in stimulating greater citizen-interest. It opens new channels of popular participation in government for tomorrow's citizens—and their families. A competition for designs for the report could well be made an annual project in the high schools—on a city-wide basis.

Content Also Counts

Format must relate to the substance of the year's work. The contest of the annual report must tell the story and present the record in sufficient detail to provide the reader with a comprehensive account of City Hall's operations.

A few standard items may well be included in any report. A directory of officials with addresses and office hours of the various departments, a table of contents and an index, add to the usability of the report. Statistical summaries of incomes and expenditures (with graphic presentations and periodic comparisons)—rather than detailed accounts—will enhance accurate understanding of the city's fiscal situation.





In addition, departmental reports should include essential data regarding the year's activities. Here also, detail is less important than interpretation and the recording of over-all operations. The citizen who wants to know more about the details can always visit the department and find the answers through the current records or by interview. The community as a whole wants—and needs—a more general and comprehensible report.

Paper and printing costs saved in briefer and more readable reports will more than cover the additional expenditure on the type of illustrations suggested here. And, as indicated above, the untapped resources, in the schools and in the community, for effective graphic dramatization of the annual report can generally be mobilized without cost. Citizen-cooperation in producing the report is, indeed, one of the best kinds of civic education in which City Hall can engage.

ENTRIES INVITED FOR NATIONAL EXHIBIT OF MUNICIPAL REPORTS

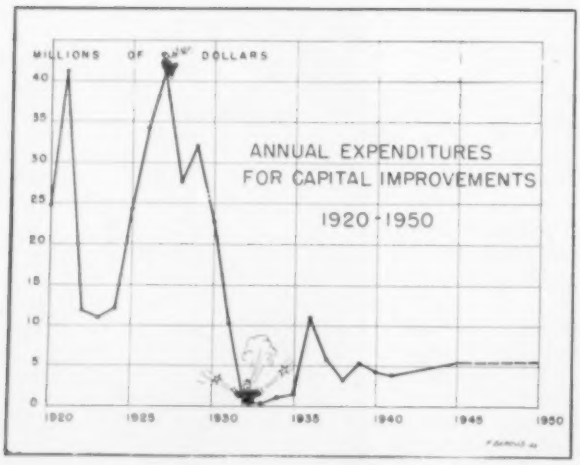
The American Institute of Graphic Arts will hold next April, at its New York headquarters, a national exhibit of the best annual town and city reports issued during 1944. The current number of Direct Advertising magazine carries letters endorsing the exhibit idea from Clarence E. Ridley, Director, International City Managers' Association; Carl H. Chatters, Executive Director, Municipal Finance Officers Association; Alfred Willoughby, Executive Secretary, National Municipal League; Norman H. Gill, Librarian, Municipal Reference Library, City of Milwaukee; and Roger S. Baldwin, of Greenwich, Conn.

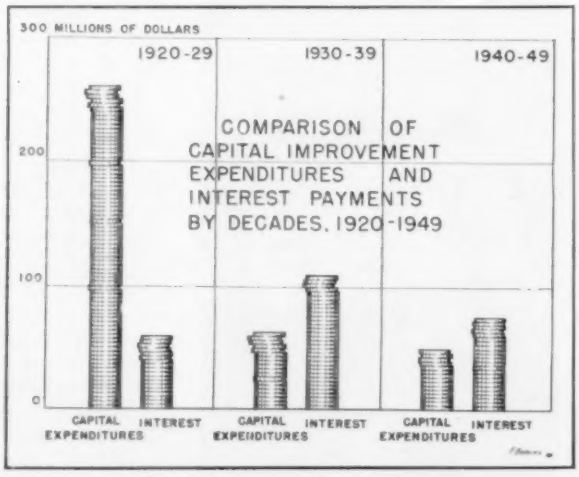
A representative national committee to manage the exhibit is in process of formation by Brad Stephens, Editor of *Direct Advertising*, 581 Boylston Street, Boston Mass., who is chairman. Municipalities wishing to submit reports for consideration by this committee should mail them to the Town Report Exhibition Committee, American Institute of Graphic Arts, 113 E. 40th Street, New York 17.

Titles of previous articles in this series by Phillips Bradley during 1944 have been:

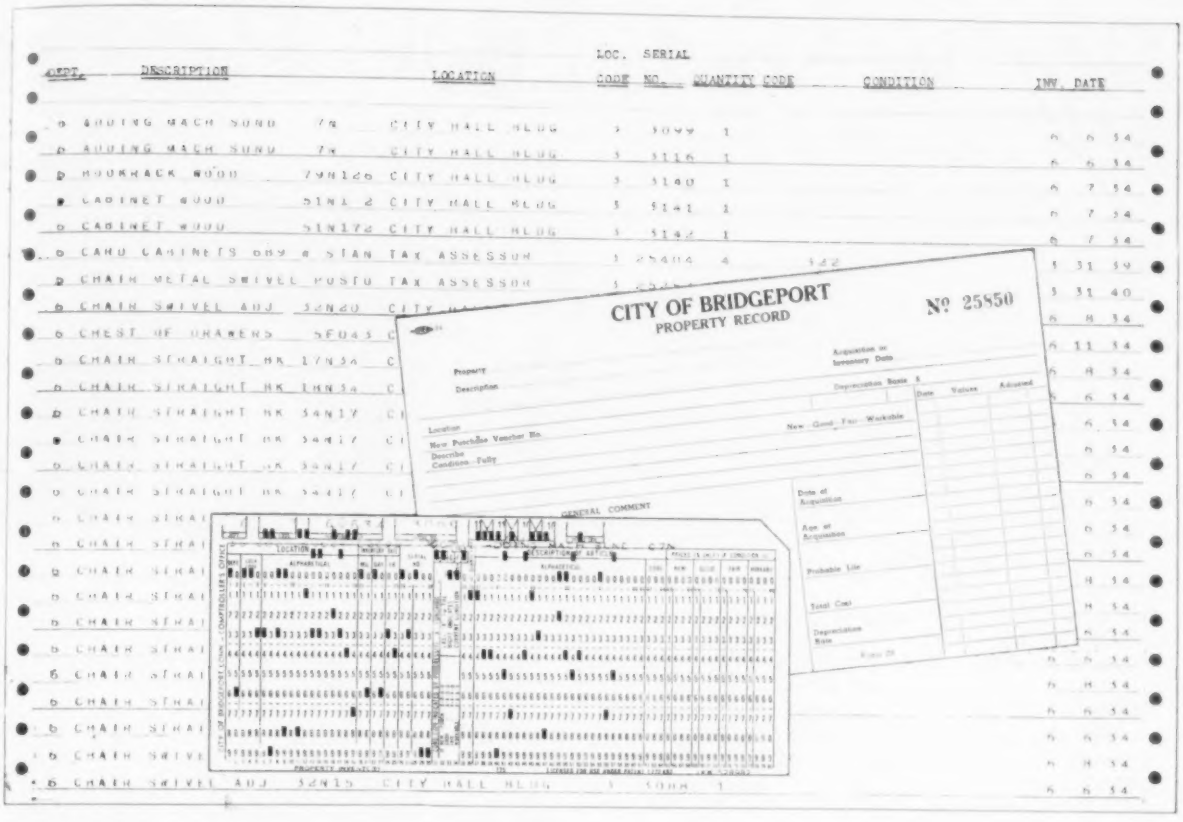
JANUARY—How City Hall Is Run—Employees Tell the Story
FEBRUARY—Something for the Boys Who Are Coming Home
MARCH—Collective Bargaining Again
APRIL—On the Air and in the Mailbox
MAY—Making "Administration" Come Alive
JUNE—Getting Projects Off the Shelf
JULY—Service with Courtesy
AUGUST—Washington's Town Srier
SEPTEMBER—Our Town's Affairs
NOVEMBER—Two City Hall Interviews

Graphic Methods of Presenting Financial Data





In its brochure, "Towards a Greater Detroit," the City Plan Commission of Detroit, Mich., makes effective use of graphic methods of interpreting fiscal facts to citizens and public officials. The charts reproduced were designed by Frank Barcus, Staff Architect.



The facts about each item of city equipment—what it is, where it is, and its condition on a given date as recorded by the using department on the larger card shown—are punched on a tabulation card. The result is full control of physical property.

Physical Property Inventories

What the City Owns, Where It Is, and Its Condition

By PERRY W. RODMAN
City Comptroller
Bridgeport, Conn.

A HEADACHE which no amount of aspirin can cure is the inability of most municipalities to control physical properties, to know where they are, what use is being made of them, whether they are actually in existence, how usable they are, and should consideration be given to replacing them.

Another problem arises in event of a fire—what was in the building? Can you prove that the loss on equipment claimed represents the normal equipment used in the building? If there were special equipment, when was it installed, how much did it cost? The ability to give the correct answers to these questions means an actual saving in dollars, and the satisfaction of knowing just what the city owns.

Bridgeport uses simple forms. This property record is set up purposely so that the original is the paper copy and remains in the book. The duplicate is a card copy which is filed in straight numeric order. This was done because a card retains carbon impressions much better than paper. The cards are numbered and this is the number of the article or articles inventory.

To start this inventory, a project using 5 or 6 people was formed, and they started out department by department enumerating all the properties within that department at a given time. As the cards were completed they were returned to the Comptroller's Office and a tabulating card was punched. The items on the cards are priced and this information is punched into the tabulating cards. The tabulating cards are filed by departments.

As purchases of additional property are made, full description, cost, source of supply, and other data are entered on a new card. The department is told to put on the property card the number assigned to that particular item. A tabulating card is made out for the new property and filed in place. This keeps our inventory up to date.

Where property is transferred from one department to another, a simple transfer slip is made out, the department being required to give a full description of the property including manufacturer's number, size, where moved from and its new location. In this way a full control of physical property is exercised and a department head is responsible for what is charged to his department in the inventory records. When it is necessary to know what properties are in a department, the cards are sorted out by the department code numbers and a listing is run as illustrated here.

Lima Has New City Hall

ON July 28 Lima, Peru, inaugurated its new city hall in the presence of many visting mayors, dignitaries and guests from other cities. The visitors included representatives from Santiago, Valparaiso, and Vina del Mar, Chile; La Paz, Bolivia; Bogota, Colombia; Montevideo, Uruguay; San Jose, Costa Rica; San Salvador, El Salvador; and Dallas, Texas.

The new three-story reinforced concrete city hall stands on the west side of Lima's main plaza. It faces the Cathedral which is on the east, and has at its left the President's Palace which occupies the north side of this square. The building occupies the same site on which the original town hall was erected in 1547.

This original building, added to and enlarged in the passing years, was burned in 1923 after nearly 400 years of service.

The new Municipal Palace built on the site of Pizarro's Cabildo on Plaza de Armas facing the Cathedral and Archbishop's Palace. It stands near the historic house of Pizarro, now the Presidential Palace.

The new city hall is in the so-called neo-colonial style of architecture and in keeping with other public buildings of Lima, with an open court or patio in the center. The building occupies an area of 2,433 square meters and has a frontage of 53 meters on the plaza and a depth of 58 meters on the side street. The building has shops on three sides on the ground floor, in keeping with the Spanish custom, and has "Portales" or a covered sidewalk on two sides. These portales are a distinctive feature of the colonial as well as the present-day architecture of Lima.

The architects are Harth Terre and Alvarez Calderon, of Lima.

Insurance Counsel Valuable to City

By JOHN TEASE
Comptroller
Green Bay, Wis.

A FEW years ago during the depression a number of companies, including insurance companies, were in financial difficulties and the city of Green Bay happened to have a policy in one of these companies. Later the city came very close to awarding some insurance to another company in the same condition. The insurance committee of the council opened bids and one of the agents who had bid was there at the opening. He requested a hearing before the committee—which was granted. Next morning's paper published an article that the insurance company, represented by this agent, was in financial difficulties. This incident caused city officials to do some serious thinking, and that is how the idea of engaging an insurance counsellor developed.

All insurance policies are submitted to him. He does not tell the city how to award the insurance, etc., he simply advises as to any irregularities and makes recommendations as to those companies which, in his opinion, are not financially sound. From then on the city officials make the decisions.

The first thing that the counsellor does, when engaged, is to check over all policies. Then he arranges to have all city property appraised, which in our case was done by the assessor. Adjustments in the amounts of the policies were made, and he personally checked these various buildings to see that we were given all the credits due us according to risk. He was successful in increasing and securing additional coverage by including extended coverage for a small additional premium.

The first of this year he called to our attention that a new boiler insurance policy is being written with broader coverage and recommended that we cancel our present policy and rewrite. This is another case where we saved money as we have been insured with another concern on the strength of immediate inspection, if necessary. The counsellor called to our attention that this is not so important with a municipality as with an industry.

Liability Protection

We wanted liability protection covering the public in the case of signs hanging over the streets, as well as signs that are constructed above buildings, as a prerequisite for a permit to be issued by the building inspector. We had some trouble to induce an insurance company to write such policies, and it was only through our counsellor's efforts that we were able to arrange for such insurance to be written.

Green Bay has a city ordinance which provides that taxicab companies must carry liability and property-damage insurance, and naturally the policies are submitted to the counsellor before the council approves them. In this instance, the insurance company's financial condition was questioned and the insurance committee of the council, which wished to be fair with this taxicab company, told them of the condition of their insurance company. Apparently they were unable or unwilling

to procure a policy in another company and the case finally went to the circuit court. The judge decided in favor of the taxicab company and held that the council had no right to question the insurance company as they had authority to do business in the state. It was decided that it was the obligation of the state to determine their financial responsibility since if they had not been responsible they would not have granted them a license to do business in the state. Of course, if the policy was to have been issued for the city, the officials would not have awarded them the insurance.

Municipal Vehicles

Our liability and property damage insurance policy on city vehicles is carried with larger amounts, and also has endorsements covering non-ownership cars and hired cars. The non-ownership is on a flat bid, while hired cars are on compensation paid or payroll basis.

There was a definite reason why the city arranged to have non-ownership included. The insurance committee of the council has noted that occasionally a council member uses his own car on his committee work, and in one or two cases we know that he has no insurance, which left a question as to whether the city would be liable in that case. A resolution has been adopted by the council providing that when any employee engaged by the city is required to furnish transportation in connection with his work, he must file with the city clerk a certificate of insurance which must provide that in the event of cancellation the city must be given ten days' notice.

From *The Municipality*, publication of the League of Wisconsin Municipalities.

Airports Are as Vital as Were Paved Highways

WILLIAM A. M. BURDEN, Assistant Secretary of Commerce, said at the dedication of the Elkins Airport, Elkins, W. Va., "Thank you for your invitation to take part in the dedication of your new airport, only a little more than a year after the work on it began.

"You are aware that aviation is moving so fast we cannot take time out for one moment in developing fundamental facilities. This you demonstrated by utilizing an existing structure for the administration building, rather than erecting a new one. The administration building, before becoming a part of the Elkins Airport, was in another location, serving another purpose, and wearing a much different aspect. As it now stands it is a splendid example of what cities can do in employing municipally owned buildings to perform new functions. If every community in the nation shows the same spirit of alert ingenuity and initiative, the problem of providing an adequate national airport system will be vastly simplified.

"The Elkins Airport is designed to serve not only air transport, but personal flying, which we believe will be the backbone of civil aviation. We foresee 300,000 civil aircraft in the United States within four years after the war, of which more than 90 percent will be personal, as distinct from airline planes. The Elkins Airport would be a link in a nationwide chain of landing fields for such flying. This is not to say your port is a small one. On the contrary, it will handle airline service. Its 4,500-foot runways are adequate for 30 place airplanes up to a gross weight of 50,000 pounds. It will serve you for many years, I believe, as a major airport.

"What is happening today in Elkins will be happening, I hope, all over the nation, as soon as the war situation permits. To understand the importance of the work proposed we have only to look back at the history of the development of the automobile. The growth of our great automobile industry would not have been possible without a large scale aggressive program for the construction of hard-surfaced roads. The growth of private flying and air transport are equally dependent on the development of an adequate airport system.

"The Civil Aeronautics Administration is preparing for submission to Congress, in response to a resolution so directing, a report on the needs of civil aviation which will show 3,000 new airports are required in addition to the improvement of at least 1,625 existing fields. The cost of this program, exclusive of land and buildings, will total just a little more than a billion dollars, approximately half to be borne by the Federal Government and the balance by the states and their political subdivisions.

"While some additional large air terminals will be needed, the Civil Aeronautics Administration emphasizes the importance of the smaller types of landing fields proposed. It is our belief that if we are to have a thriving aviation industry, it must have its base in the grass roots of our country. That means first of all flying fields located within easy reach of your homes and offices, fields designed for the small private aircraft, which many of you will own or rent. It also means fields a bit large, but still modest in size, for local commercial air service to and from the thousands of small communities not now accessible by plane.

"At present only 286 places in the United States are approved stops on scheduled airlines. Under the CAA plan there would be more than 1,800 cities with airports which could accommodate air transport operations. The ultimate need for such expansion is evident.

"We of CAA see airports as bearing a relation to the development of aviation identical with that borne by highways in the early development of the automotive industry. Roads are not outmoded, but the airplane has moved our lives into a new dimension. If we are to take to the air, its highways and terminals—that is, airways and airports—must be developed."

Public Improvement Planks in Newspaper Platforms

In a discussion of "The Post-war Responsibility of the American Press," (reprinted from *Journalism Quarterly* for June 1944) Edward L. Bernays, the well-known public relations counselor, analyzes the "platforms" of 169 American newspapers.

Local planks, often repetitious, run through 76 percent of these platforms. Here are some high spots: "Improving local schools," "sewers," "streets," "roads," "city manager government," "parks," "recreation," "community welfare," "church support," "farm," "luncheon clubs," "local taxes," "recreational buildings," "full use of port facilities," "best rail and air service," "comfort stations for shoppers," "noise abatement," "flood control," "improved transit facilities," "house numbering," "advancement of prestige as art center" and hundreds of other local causes.

POST WAR HIGHWAY PLANNING DEMANDS *accurate* TRAFFIC COUNTS!

In city . . . . in country . . . . wherever engineers are maintaining or planning streets and roads . . . . the Streeter-Amet Traficounter is providing indispensable traffic counts . . . . with more speed, greater accuracy and at lower cost.

Essential to the solution of present and future traffic problems are reliable traffic measurements . . . . showing how much traffic, when it moves, and in what channels. Today, in hundreds of locations, Streeter-Amet Traficounters are measuring and recording vehicle movement . . . . breaking down the flow by 15 minute periods. They are on the job continuously, day and night, in fair weather and foul. They require minimum of labor and attention.

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Traficounter

Leadership Needed in the Municipal Bond Field

THE largest item of municipal expense in many communities is debt service, running as high as 25 percent in even such a carefully controlled city as Bridgeport, Conn. The latest Census Bureau figures (covering the fiscal year 1942) show that for cities in the United States of over 25,000 population, general expenditures of operation totaled $1,914,243,000, and debt service amounted to $460,695,000.

This expense is far greater than the operating cost of—

Water supply and purification, or
Sewage treatment, or
Street cleaning, or
Refuse collection, or
Fire protection, or
Traffic control, or
Police protection.

Everyone of the foregoing operations is organized on a national scale with important engineering and technical associations for the dissemination of new ideas and methods. To local officials municipal bonding, however, is largely an unexplored field filled with mysteries. It is as if in the conduct of the above technical services, the storekeeper, factory executive, local lawyer, or dentist, who compose the City Council or Commission, had to deal entirely with outside technicians who gave them little insight into the factors of successful operation. Is it a healthy situation conducive to public confidence and cooperation?

Municipal bonds are debts, and sensible people do not like debts, individually or collectively. In public work they are necessary and they can be anything but evil. They bring needed improvements which often pay for themselves. The proper placing of bonds is as much a technical operation as the economical provision of pure water. But whereas the officials of the water department have a physical system of pipes, pumps and apparatus which they understand and daily manipulate, the officials in charge of bonding very often do not possess even the vestiges of financial minds and must depend on bond or certifying attorneys and bankers.

The banking profession is notoriously reticent. Where manufacturers are used to giving wide and revealing publicity to their products, the bankers, or more specifically the bond houses, give no publicity of comparable worth to their clients, the city governments. Many of them actually render valuable services to the cities, but they do not capitalize on these services, tell other cities what they are and thus continually extend their influence and prestige and build ever stronger good will. They keep their light under a bushel.

Leaders Needed

Municipal bonding needs heading up. Many responsible officials of large cities, let alone small and scattered cities, possess very little practical knowledge of bonding, bond houses or the bond market. They are not in the bond business every day, like the water superintendent who is in the water business every day. They are confronted with a fairly intricate financing problem once in a while, and then they must depend on spot advice. If they are located in the great cities, of which there are very few, a great deal of advice is available, but if they are in cities remote from the great centers, they must depend largely on "country counsel."

The situation is completely different when they need new street lighting or an electric motor. Every leading manufacturer in the country is at their command, and they know who these manufacturers are and what they sell and their facilities and services. The time would seem to be right for leading bond houses to step forward and to let all cities know who they are and that they are not only willing to submit bids but also to counsel on the form of issue, best time for sale, and desirability of a finance plan. They should make clear the diversification of their investors, and their interest in a sound issue, since only such issues can be a protection to their investors.

This type of publicity should give life to what is generally regarded as a cold-blooded operation. Bankers like to be thought cold blooded. Where every manufacturer worth his salt strains to have his company regarded as having a warm interest in the problems and welfare of his customers, financial institutions have enjoyed being regarded as remote, unapproachable, calculating. Instead of a "glass eye" attitude, their voices and advise are urgently needed now when municipalities the country over are wondering how they will finance their post-war nightmare.

So far THE AMERICAN CITY has been speaking. There are more informed and eloquent voices to urge the bond houses to step forward into a profitable public-spirited leadership of the headless municipal bonding field. Carl H. Chatters, Executive Director of the influential Municipal Finance Officers Association, writes:

"The municipal bond house can help the municipality by telling it when a favorable market may exist, by advising it on the best arrangement of maturities, and by making general suggestions about the type of bonds to be used. There may be a better market for revenue bonds than there is for general obligation bonds and the city may have a choice. A good bond house can advise the city what type to use. A city may plan its maturities in such a way that the market does not like to handle them: that is, it may not make them out in multiples of five thousand or ten thousand so that order lots are too numerous. Frankly, there are many ways in which a bond house can help if it is willing to do so, and there are just as many ways in which it can scheme for its own profit to the great detriment of the municipality. Public officials need to know which type of house they are dealing with so that they can rely on the one which has some public interest."

This magazine interviewed Walter Darby, Municipal Finance Commissioner of the State of New Jersey, to learn his ideas as to the factors underlying security in a bond issue. "In pointing these out for the education of investors," said Mr. Darby, "the bond houses would also be educating cities on what makes their bonds desirable, saleable, marketable. Bond houses might also point out things which cities can do to create and maintain proper relations with their bond holders after the bonds have been distributed. Bond houses can make themselves of intimate value to cities by showing them how to market a 2.15 instead of 2.25 bond."

City of Bridgeport

THE AMERICAN CITY also interviewed Perry W. Rodman, City Comptroller of Bridgeport. "What Mr. Chatters said is true," said Mr. Rodman, who was able to lay down a policy which he believes would be profitable for the bond houses to adopt and follow through and would constitute a public service of high character. Here are Mr. Rodman's suggestions:

1. Set up a uniform information request for the cities to fill in. The questions are to bear only on the present and future, the bond houses doing their own research on past history.

2. Set up a list of factors that influence their decision to bid or buy, and advertise this to municipalities so they can correct their faults.

3. In submitting a bid, state the net cost to the seller or city. Bids now give a rate and premium only. No municipal-

(Continued on page 95)

AUTOMATIC VOTING MACHINES

vs

THE OLD FASHIONED PAPER BALLOT

At the Presidential Election in the State of Kentucky voting machines were used exclusively in FAYETTE COUNTY (Lexington) and also in the TENTH WARD of Louisville (Jefferson County), the comparison with the old paper ballot system is emphasized by the Louisville, Ky., "COURIER-JOURNAL" in an editorial of November 9, 1944.

"THE VOTING MACHINES PROVE THEIR WORTH

"The weather, propitious on Tuesday for a full expression of the popular will, obliged us next day with a rainy morning on which to study that picture in Wednesday's COURIER-JOURNAL of a typical line before a St. Matthew's voting place. It was fifteen minutes to closing time and it took 45 minutes more for the last one in the line to mark his ballot.

"The crowd wouldn't have had to wait much longer to read in The Louisville TIMES returns from Tenth Ward voting machines and the first report from Fayette County, forecasting the election trend locally, in the state and throughout the nation. It is an object lesson, emphasized no less by the voters' personal experience than by the change in the weather. Each one remembers the time consumed while precinct officers were writing their own names and that of the person ahead of him on the ballot or stub. Could the clerical work have been reserved for idle moments during the day, there would have been no delay, but nearly all of it necessarily was confined to rush hours.

"This clerical work is an indispensable safeguard so long as the old-fashioned method of voting prevails. Then the returns have to be laboriously and expensively canvassed, whereas the voting machines automatically total the returns before most of the ballot boxes reach the court house.

"The convenience of voters, the accuracy of the tally, the early disclosure of the result and, as FAYETTE COUNTY has demonstrated, the saving to taxpayers, all argue in favor of voting machines."

The advantages of Speed, Accuracy and Economy are included in literature which will be furnished without obligation by

THE AUTOMATIC VOTING MACHINE CORPORATION

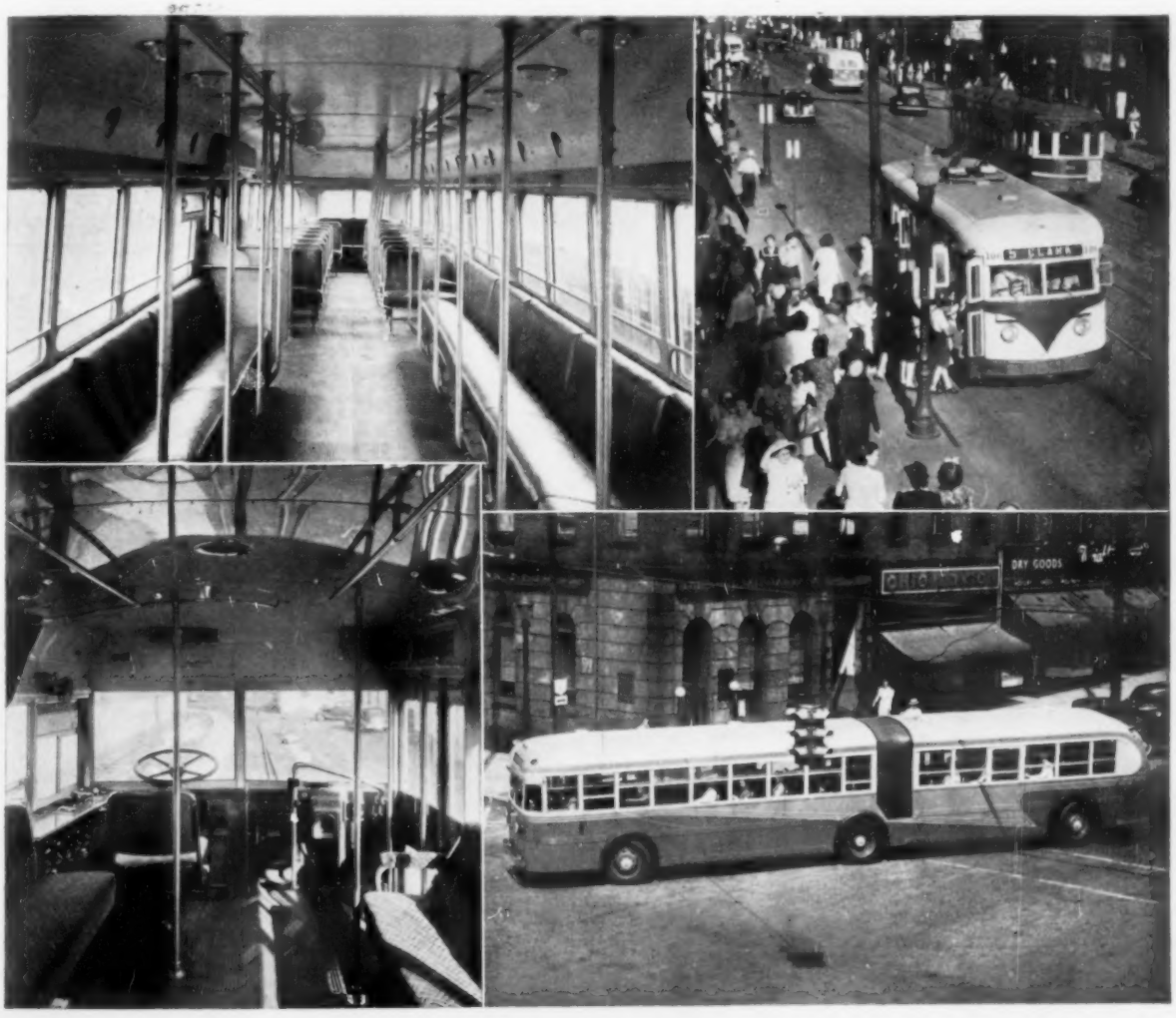
Jamestown 55 ***New York***

Better Streets, Vehicles and Transit

Excerpts from the written speeches of the 63rd American Transit Association Convention-in-Print conducted October-November, 1944, in place of Annual Convention

HAROLD M. LEWIS, President, American Institute of Planners, New York City, pointed out that "The modern city is a complicated mechanism. Like a great modern factory, it must be efficiently planned and arranged to function effectively. This mechanism can function smoothly and effectively only as the daily flow of people and materials takes place with minimum effort and delay. The preparation of the city plan and the constant rechecking of the growth of the community, particularly as reflected in its public-works program, is the main responsibility of any official planning agency. The future of public transit in the community will depend on the correlation and interpretation of data pertaining to: (1) trends and shifts in population, (2) adjustments in the land-use pattern, (3) new developments and redevelopment projects, (4) zoning and subdivision advancement, (5) future riding habits and volume, (6) hourly, daily and seasonal traffic fluctuations, (7) street improvements to relieve congestion, (8) business activity and public-works programs, (9) type of transit service to be rendered, (10) community action and attitude."

Charles E. DeLeuw, Consulting Engineer, Chicago, discussed the reasons for integrating post-war transit and street plans. "It is logical to assume that the over-all objective of transit planning will be to provide faster and more frequent service on main traffic arteries rather than merely to reach out into thinner territory with small vehicles. To some extent both types of development may be expected, but improvement of main line service offers by far the most important immediate opportunity and need. More attention will have to be given to cross-town lines because of the decentralization of both industrial and retail activities. With industries now located near the fringes of the city, proper



These views of modern transit vehicles were furnished by courtesy of the Pullman Standard Car Mfg. Company, Chicago; the St. Louis Car Company, St. Louis, Mo., and the Twin Coach Co., Kent, Ohio.

Pretty

but . . . dangerous!

Under a microscope snow flakes are beautiful, but piled and drifting on the city streets they become menaces to life and limb and rolling stock. Transportation is stalled—business is lost—paving comes in for the toughest type of weathering. But not if SNOGO is there to clear the streets.

As a matter of business, no city can afford to be without SNOGO, which clears streets to the curb, with no drifts pushed into driveways, no heavy banks left in gutters, no layer of snow remaining to thaw and freeze into ruts. Workers get to their jobs, children to school—and back. Streets are open for the fire department and the doctor. Write for full facts.

KLAUER MANUFACTURING COMPANY
Dubuque, Iowa

SNOGO

A SNOGO For EVERY BUDGET

routing will tend towards balanced loading on transit lines, and this can be of great significance to transit companies. This advantage will be lost if patrons must travel between home and work on a circuitous route through congested business areas on outmoded and perhaps competitive routes established years ago."

Presents and Future Demands

Surveys can show much about present and future demands of the transit industry. Thomas H. MacDonald, Commission of Public Roads, Washington, D. C., thus analyzes urban travel. "From the standpoint of moving traffic, the main rural highways have attained a degree of improvement far beyond that now found on the city street. Here surface condition may still be adequate, but in often repeated instances traffic has become almost hopelessly snarled and internal movement is experiencing a slow stagnation. Our major problem is to bring the main rural road system up to its full utility by greater efforts at its extremities. We must free the main routes through and into the cities of their increasing congestion, and we must build the essential feeders in rural areas. Restrictions to movement at the ends of the journeys, with which we shall be faced soon after the war, will be as intolerable as the resistance of the main line mud of the early twenties. Both in magnitude and complexity the city problem stands as a challenge. Approximately half of the total vehicle miles of travel are preformed within the limits of municipalities. Almost exactly half of the motor vehicles registered in 1941 were owned in cities having a population of 10,000 or more. The importance of the city to rural highway traffic is seen in figures that show that over 85 percent of all trips on the rural highway have either their origin or destination, or both, within municipalities. Undoubtedly many of the remaining 15 percent of the trips that have both rural origin and destination pass through one or more incorporated places. The influence of the city extends outward from its limits along the rural highways, an influence that is reflected in rural highway traffic at distances up to 35 miles from the largest cities."

Urban Freeways

Frank H. Malley, Planning Director of Buffalo City Planning Commission, discussed the location and functions of urban freeways. "The proper location and design of urban freeways is the greatest single element in the future of cities' ills and in the directing of their proper and adequate future growth. By freeway is meant a highway having entrances limited to certain designated points. New highways and changes must be located and their use decided in terms of land use, population density and distribution, of zoning and of types of available transit service. Trends in the growth and direction of business activities, in auto ownership and use, in types of traffic, origin and destination, and amount of travel must be analyzed. Recognition of the fact that space required for workers' cars is equal to the space for working must be in the mind of the designer."

Types of Vehicles to Come

Along with the discussion of types of highways, freeways, and city streets needed for post-war America, space was devoted to types of vehicles that will come into use. A. F. McDougald, Chairman, ATA Advisory Committee on Motor Coaches, shows how buses will meet the post-war challenge. "A very basic question to our transit industry is—can we hold today's volume of riders with the present type of equipment long enough to develop and place in operation post-war vehicles which will meet the even faster development and availability of the new private automobile? The Motor Coach Advisory Committee, in conjunction with the Operating Division Committee, is working very closely with the manufacturers to develop vehicles having greater attractiveness, more comfortable riding qualities, with improved operating characteristics, and economical to operate and maintain. Realizing that we are in an era of speed, greatest emphasis must be placed on the ability of mass transportation vehicles to accelerate and decelerate quickly. The acceleration characteristics of the post-war bus must approach those of the PCC car. This means more powerful engine performance and smoothly operating transmissions."

Pointing out further the type of vehicles, the public will demand, W. E. P. Duncan, General Manager, Toronto Transportation Commission, says: "There is a soundly based belief that the public expects, and should receive, a much improved transit vehicle. Some day in the not too distant future, the automobile will return in all its glory, and if the transit operator is to retain a measure of the increased riding he is now enjoying, it behooves him to take stock of his vehicles and see what improvements can be made to hold and to attract patronage. Moreover, the vehicle must also be economical in initial cost, in operation and in maintenance. The PCC car, when it was first introduced in 1936, was a revolutionary vehicle. But eight years of operation have disclosed the desirability of certain improvements which would increase the comfort and safety of the passengers, add to the convenience of operation, or effect further economies in maintenance. The body will be widened out towards the rear to provide adequate width and leg room for the rear seats, and the cars will be produced in three sizes.

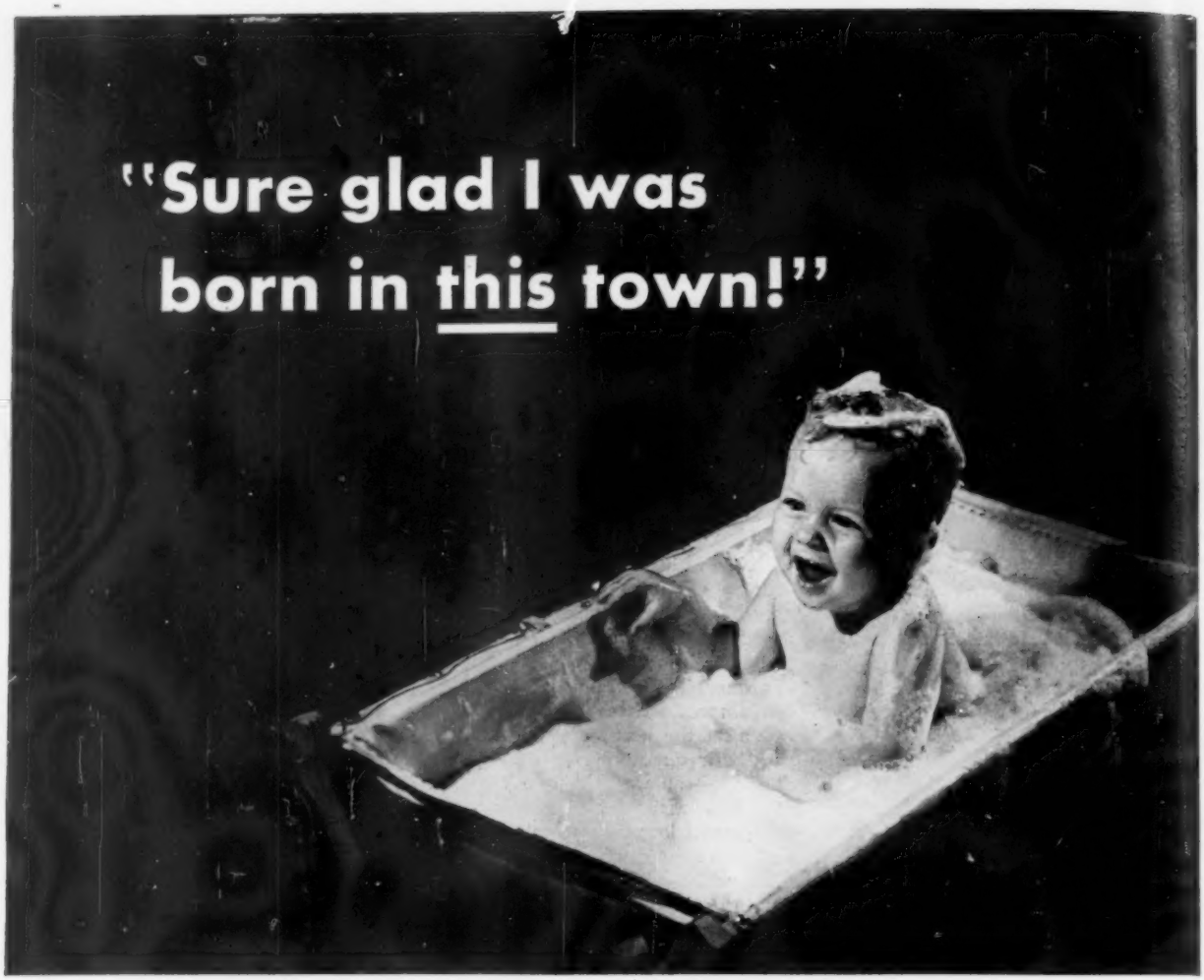
Three Victories for P. R.

ALTHOUGH most charter revision questions are being held in abeyance till the war is over, November 7 saw three local referenda involving proportional representation. One new city adopted it and two others voted to keep it. In two of the three cases the city manager plan was also at stake.

The new P. R. city is Marshfield, Oregon, which at the same election changed its name to Coos Bay. This little coastal city of 5,000 adopted a new charter under which the only elective officers will be six councilmen chosen from the city at large in a nonpartisan ballot by P. R., and a mayor, who will be president of the council, chosen by the Hare system of majority preferential voting on a separate nonpartisan ballot. The council will appoint for indefinite terms a city judge and a city manager, who in turn will appoint all the other administrative officers. Coos Bay will be the first P. R. city in Oregon. The vote for adoption was 976 to 873.

The two cities which voted down attempts at repeal are Hamilton, Ohio, and Long Beach, New York. Hamilton has used P. R. for its city council elections since its present city manager plan charter was adopted in 1926. During all that time it has had nonpartisan government and only one city manager, Russell Price. Municipal services have, by common consent, been of a high order. As on three earlier occasions, Hamilton voted down a proposal to repeal P. R. and substitute plurality elections. The vote this year was 10,709 to 8,042.

Long Beach adopted P. R. and the manager plan last year and had to vote on the issue again before the new plan went into effect. A charter commission, chosen at the same election at which the P. R.-manager amendment was adopted, submitted a new charter which would have repealed the amendment and substituted a weak mayor and ward council. This charter was defeated by 3,168 votes to 1,935, a considerably larger margin than that by which last year's amendment was adopted. The first P. R. council will be elected next fall and the first manager will be chosen in January 1946.



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NEXT to the air they breathe, water is about the most important of your citizens' needs. It's Public Utility Number One—and its quality can decide whether or not your community will be happy and prosperous. Hundreds of modern cities realized this before the war—and installed Permutit* equipment to give them soft, clear water from every faucet in town.

Forward-looking city officials are planning *now* for good water as their most important post-war improvement. Get the facts about Permutit's more practical, more economical equipment for municipal water conditioning. Write to The Permutit Company, Dept. G-3, 330 West 42nd Street, New York 18, N. Y. In Canada: Permutit Company of Canada, Ltd., Montreal.

*Trademark Reg. U. S. Pat. Off.

SOFT WATER FOR CITIES—
in only 8 minutes!

Permutit's "Spiractor" brings revolutionary new features to cold lime soda water softening. It cuts detention time to as low as 8 minutes, leaves no sludge to be disposed of, makes big savings in steel and in space . . . and it's simple to operate!

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WATER CONDITIONING HEADQUARTERS

How Best to Spend $10 or $25 for Community Planning Literature

THE following question was recently posed by THE AMERICAN CITY to a few of its friends who are well versed in the literature of city and regional planning:

"What answer would you give to this inquiry from the Public Library of a non-metropolitan county-seat town?—'There is a growing interest among our officials and citizens' organizations in community and county planning. Will you kindly suggest a list of books and pamphlets that would be helpful to our local leaders in galvanizing this interest into intelligent and effective action? If we had $10 to spend at the start for such printed matter, what titles would you recommend? And what additional titles if the amount were increased to $25?'"

Replies have been received from: Walter H. Blucher, Executive Director, American Society of Planning Officials; Harlean James, Executive Secretary, and Flavel Shurtleff, Counsel, American Planning and Civic Association; Frederick J. Adams, Professor of City Planning, Massachusetts Institute of Technology; and Professor Karl B. Lohmann, Bureau of Community Planning, University of Illinois.

From these replies the following list has been compiled of books and pamphlets recommended for purchase out of the $10 fund:

Recommended in Two or More of the Replies

PLANNING FOR THE SMALL AMERICAN CITY.—By Russell Van Nest Black. Public Administration Service, 1313 East 60th Street, Chicago 37, Ill. Revised 1944. 90 pp. $1.

ACTION FOR CITIES. Public Administration Service, 1313 East 60th Street, Chicago 37, Ill. 1943. 77 pp. $1.

BETTER CITIES.—By Charles S. Ascher. National Resources Planning Board, Superintendent of Documents, Washington, D. C. April 1942. 22 pp. 10c.

OUR CITIES, THEIR ROLE IN THE NATIONAL ECONOMY. National Resources Committee. Superintendent of Documents, Washington, D. C. 1937. 88 pp. 70c.

PLANNING OPPORTUNITIES FOR TOWNS IN ILLINOIS.—By Karl B. Lohmann, M.L.A. University of Illinois, Urbana, Ill. 1944. 39 pp. Single copies free, quantity 15c each.

COMMUNITIES FOR LIVING.—By E. Stuart Chapin, Jr., in collaboration with Sam Schiller. University of Georgia Press, Athens, Ga. 1941. 56 pp. 40c.

SMALL TOWN MANUAL FOR COMMUNITY ACTION. Bureau of Foreign and Domestic Commerce, U. S. Department of Commerce, Washington, D. C. 5c.

HANDBOOK ON URBAN REDEVELOPMENT FOR CITIES IN THE UNITED STATES. Federal Housing Administration, Washington, D. C. November 1941. 105 pp. 15c.

COMMUNITY PLANNING FOR YOUNGER CITIZENS. New England Town Planning Association, 77 Massachusetts Avenue, Cambridge 39, Mass. 32 pp. 25c.

Additional Titles Suggested in One Reply Each

FROM THE GROUND UP. New England Regional Planning Commission. 1939. 54 pp. Single copies free from Roland B. Greeley, 1359 Massachusetts Avenue., Lexington, Mass.; 5 or more copies, 8 cents each.

CITIES ARE FOR PEOPLE: The Los Angeles Region Plans for Living.—By Mel Scott. Pacific Southwest Academy, Los Angeles, Calif. 1942. 110 pp. $1.50.

PLANNING WITH YOU. Architectural Forum. 19 West 44th Street, New York, N. Y. August 1943. 15 pp. 10c.

WHY CITY PLANNING IS YOUR RESPONSIBILITY.—By Oscar Stonorov and Louis Kahn. Revere Copper and Brass, Inc., 230 Park Avenue, New York, N. Y. 1943. 14 pp. Free on request.

YOUR HOME TOWN—A COMMUNITY DEVELOPMENT HANDBOOK.—By Frederick P. Clark, New Hampshire Planning and Development Commission, Concord, N. H. 1939. 62 pp. 25c.

LAND SUBDIVISION. American Society of Civil Engineers, 33 West 39th Street, New York, N. Y. 1930. 75 pp. $1.20.

PRINCIPLES OF CITY PLANNING.—By Karl B. Lohmann. McGraw-Hill Book Co., New York, N. Y. 1931. 395 pp. $4.

URBAN PLANNING AND LAND POLICIES. Vol. II of the Supplementary Report of the Urbanism Committee of the National Resources Committee. Superintendent of Documents, Washington, D C. 1939. 366 pp. $1.

WAR, BABIES, AND THE FUTURE.—By William F. Ogburn. Public Affairs Pamphlet #83. Public Affairs Committee, Inc., 30 Rockefeller Plaza, New York, N. Y. 1943. 31 pp. 10c.

THE CONSUMER SPENDS HIS INCOME. National Resources Committee. Superintendent of Documents, Washington, D. C. 1939. 47 pp. 10c.

A PROGRAM FOR THE USE OF TAX-ABANDONED LANDS. American Society of Planning Officials, 1313 East 60th Street, Chicago 37, Ill. 1942. 38 pp. 50c.

THE FUTURE OF TRANSPORTATION. National Resources Planning Board. Superintendent of Documents, Washington, D. C. 1942. 43 pp. 10c.

HOUSING: THE CONTINUING PROBLEM. National Resources Planning Board. Superintendent of Documents, Washington, D. C. 1940. 60 pp. 10c.

PLANNING PROFITABLE NEIGHBORHOODS. Federal Housing Administration. Superintendent of Documents, Washington, D. C. 1938. 35 pp. 20c.

LONG RANGE PROGRAMMING OF PUBLIC WORKS. National Resources Planning Board. Superintendent of Documents, Washington, D. C. 1941. 72 pp. 30c.

SO YOU'RE GOING TO PLAN A CITY from *Fortune* January 1944. Reprints free of charge. Fortune Magazine, Rockefeller Center, New York 20, N. Y.

YOUR STAKE IN COMMUNITY PLANNING. National Committee on Housing, Inc., 512 Fifth Avenue, New York 18, N. Y. October 1944. 27 pp. Illus. 35c.

Other Books If $25 Available

LOCAL PLANNING ADMINISTRATION. Ladislas Segoe and collaborators. International City Managers' Association, 1313 East 60th Street, Chicago 37, Ill. 1941. 699 pp. $7.50.

THE PLANNING FUNCTION IN URBAN GOVERNMENT.—By Robert A. Walker. University of Chicago Press, Chicago, Ill. 1941. 376 pp. $3.00.

CAN OUR CITIES SURVIVE?—By Jose Luis Sert. Harvard University Press, Cambridge, Mass. 1942. 259 pp. $5.

THE CITY, ITS GROWTH, DECAY, FUTURE.—By Eliel Saarinen. Reinhold Publisher Corp., New York, N. Y. 1943. 380 pp. $3.50.

Memberships and Magazines

All four of the replies recommended that the appropriation be stretched to include membership in a planning organization and subscription for THE AMERICAN CITY. Mr. Blucher wrote:

"If a community had $15 to spend for books and pamphlets on the subject of community planning, I would say that $10 of the amount should be invested in membership in the American Society of Planning Officials. I say this objectively because I know of nothing which the community could purchase for $10 that would return greater benefits, if that community is really interested in the development of a sound planning program. . . . With the membership in ASPO we would send a bibliography of important books on planning, and, in addition, they would be able to obtain a number of reports free by following the checklist of publications which appears in our *News Letter* each month.

"I have left a little money for the purchase of books dealing with special problems. They may be interested in zoning, or urban redevelopment, or traffic, or parking lots, or they might use the remainder of their money for a subscription to THE AMERICAN CITY, which would also be a good buy."

And Miss James commented:

"As a matter of fact, I think that any library purporting to keep up to date on planning matters should subscribe for THE AMERICAN CITY and the publications of the American Planning and Civic Association. A $5 membership gives the library one bound book, "American Planning and Civic Annual," and four issues of *Planning and Civic Comment* of the same page size, which may be bound into a similar volume."

What Titles Would You Add?

Municipal officials and planning consultants are invited to suggest, for publication in a supplementary list by The American City, *the titles of any other books or pamphlets that they have found especially helpful in community planning activities.*

What titles would you add?

. . BETTER LOOK TO FACTOR W/S

● If the sale of bottle water is a growing business in your town, there's probably growing resentment as well. When those who pay water taxes must also pay by the bottle for water to drink, you can look for complaints. The double charge breeds dissatisfaction.

Today, means are available by which every municipality can supply safe, clear, palatable water throughout the year. Well-qualified water-supply consultants are ready to help you plan a system that will make city water acceptable as table water to ninety-nine residents out of a hundred. They can help you plan your new water system to provide for future growth of your community — often, too, they can help you lower your operating costs.

In many forward-looking cities, serious thought is now being given to Factor W/S—the adequacy of municipal water and sewage systems. Their plans are already well under way. If you have not already done so, we suggest that you, too, *BLUEPRINT NOW for tomorrow's needs*. G-E application engineers will be glad to assist you and your consultants in this important work. *General Electric Company, Schenectady 5, N. Y.*

FACTOR W/S —your community's present and projected facilities for a continuous supply of safe **water,** adequate for tomorrow's domestic and industrial needs, and comparable facilities for sanitary disposal of **sewage.** In planning for a favorable Factor W/S encourage your consultant to apply the most advanced types of electric power distribution, motor drives, and operating control.

Blueprint Now!

Buy all the BONDS you can —and keep all you buy

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660-30-8696

Bond Issue Voted to Realize "The City We Build"

By PAUL R. FOSSUM
Chairman, the Mayor's Research Committee on Urban Problems
Tacoma, Wash.

Tacoma leads off with a concrete and inclusive post-war program

WITHOUT any great fanfare the City of Tacoma has set out to materialize the suggestions made by the Mayor's Research Committee on Urban Problems in its report, "Tacoma, the City We Build," published in May of this year and now in its second edition.*

In June the City Council, in cooperation with the School District, the Library Board, and the Port Commission, created the office of Coordinator of Public Works for the purpose of preparing plans for immediate post-war construction and for setting up a long-range schedule. Both of these schedules were to be based upon the analysis and suggestions made in the report of the Mayor's Research Committee on Urban Problems. Colonel E. F. Antonovich, U.S.A. retired, an able Army engineer, was named Coordinator and worked untiringly with the political agencies mentioned as well as with the service clubs, the Chamber of Commerce, and various other public-spirited organizations.

The report and schedule set up by Col. Antonovich was published September 15 and thereupon five propositions were drawn for submission to the voters on November 7. At the election all five of these propositions were carried by majorities of two to one or greater. These proposals were of two types: (1) to provide funds by means of a bond issue, and (2) to provide maintenance and equipment moneys by increased millage.

Wide Range of Improvements

A sewer bond issue of $3,000,000 to provide for a disposal plant and intercepter sewers was approved together with an issue of $500,000 to provide matching money for a $1,250,000 fund to make a start on an over-all arterial program.

The School Board was voted permision to issue $2,000,000 in bonds for new construction, additions and renovations necessary. The School Board also had its request for special levies amounting to 18 mills granted. These levies are to be used for maintainance and immediate construction and will raise approximately $1,000,000.

Included in this same movement and coming as the result of the Mayor's Research Committee's recommendations have been the development of plans for harbor improvement and an increase in and modernization of the city's fire fighting equipment.

The longer range program set up, also in cooperation with the Mayor's Research Committee, includes provisions for a green belt about the City Center and the construction of outside arterials for the same area. A new City Hall, Auditorium, Library, and North End High School have their place in this schedule.

Tacoma, in its action on November 7, has definitely placed itself among those cities which will plan their development along long-range lines. The economic analysis of the region and the city and the proposals based upon that analysis, as they were worked out in the Research Committee's report "Tacoma, the City We Build," has not only been the deciding argument but also the guiding light for this forward move. The publicizing of the report's contents by the press, its use by study clubs and individuals, and its favorable reception throughout the state and nation, have been most important factors in convincing the home folks of the importance and value of this program to them.

* For a preview of this report, see THE AMERICAN CITY for September 1943, pages 53-55.

Cooperative Extension Helps Village and County Governments

By LESTER A. SCHULUP
Chief, Division of Extension Information
United States Department of Agriculture

THE Cooperative Extension Service of the United States Department of Agriculture and the state agricultural colleges have an important job to play in helping rural people to participate most effectively in the many wartime emergency programs. This is in addition to helping farm people keep pace with modern scientific methods in farming and homemaking. But extension work is also doing much to cooperate with local, village, and county governments.

The cooperative extension system was authorized by law in 1914, and now has been serving American rural and urban families for more than 30 years. Its work is familiar to every American farm family and to millions of urban families as well. It is an agency which has federal, state, and county financial and moral support.

Many city people have looked upon the agency as one which renders service only to farm people. In the past few years, however, they have come to know more about this educational arm of the United States Department of Agriculture and the state agricultural colleges.

Victory Garden Movement

Much of this new knowledge of the agency has come about through the Victory Garden movement, which has been spearheaded throughout the Nation by the Cooperative Extension Service. Tons and tons of food have been produced on village and city lots to help the wartime food production and conservation effort. County extension agents, the local representatives of the Cooperative Extension Service, have worked hand in hand with village, county, and city governmental units in this educational program.

The Victory Garden movement has built a fine foundation, for a continued after the war is over. There is need and opportunity, it is believed, for developing a much wider interest in home grounds and community improvements and a sustained attack on ugliness in cities and towns. There is need, Victory Garden leaders believe, for better city planning and home development to allow people opportunity to grow not only vegetables but lawns, flowers, shrubs, and to make

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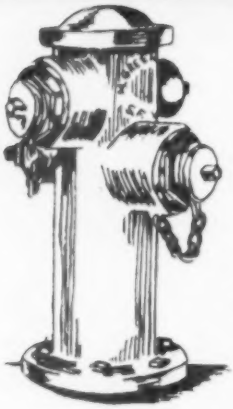

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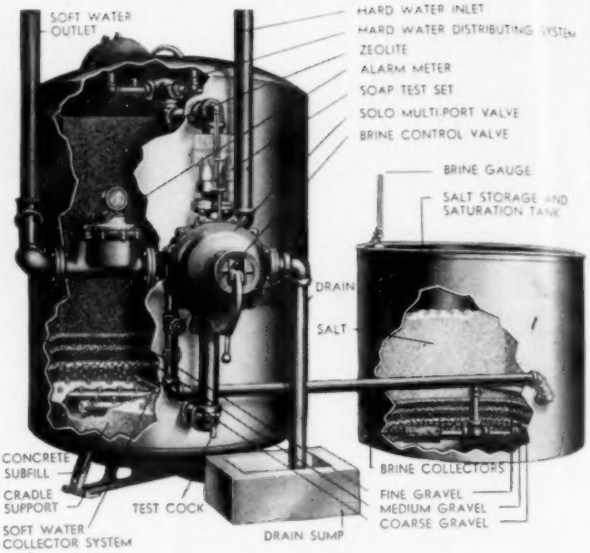

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home towns and cities more attractive. Much of this can be done through cooperation with village governments.

But aside from the successful Victory Garden program, village and county governments know what to expect of the Cooperative Extension Service through past contacts. They have had the cooperation of this agency in many endeavors.

Grasshoppers, Rats, and Livestock

In some sections of the country, the necessity for controlling grasshoppers has meant close cooperation between county governments and county extension agents. Together, they have worked with their people to help ward off this traditional enemy of the American farmer. They have entered into agreements with the Federal Government on distribution of grasshopper bait. They have worked together in creating county and village roadsides for grasshoppers. And, they have done the same thing in many areas in controlling noxious weeds.

State representatives of the Cooperative Extension Service, located at State agricultural colleges, have worked with village, city, and county governments on rodent control.

Similarly, county and state representatives of the Cooperative Extension Service help county and municipal authorities in organizing and carrying on educational programs for sanitary milk production and the control of livestock diseases, such as tuberculosis and Bang's disease.

Other Community Aids

County home demonstration agents are playing a big part, too, in helping local school authorities initiate school lunches and in training school and lay people in the methods of canning and preserving vegetables and fruits for school lunches.

City planning commissions and boards have had the services of extension workers. They have acted in an advisory capacity in the management of grasslands in park systems and in many other ways. The Cooperative Extension Service has aided village and county governmental units in tree-planting programs. In some areas they are now urging the planting of "living memorials" for World War II heroes in the form of trees instead of stone and bronze memorials.

These are but a few of the ways in which the Cooperative Extension Service of the United States Department of Agriculture has aided village and county governments during the past. It stands ready to do more in the year ahead.

Philadelphia's Earned Income Tax

IN the October issue of the *National Municipal Review*, Robert J. Patterson of the Bureau of Municipal Research of Philadelphia, tells of his city's successful experience with the earned income tax. With real estate taxes at the 1936 level, and without imposing a sales tax, Mr. Patterson explains:

> Adoption of this tax has enabled the city to balance its budget each year beginning with 1941, the second year of income tax collections, in contrast with nineteen successive annual budget deficits immediately preceding 1941 — deficits which averaged $10,284,000 a year and ran as high as $32,530,000.

The importance of this source of income, however, can best be realized by noting that in 1943 it supplied 24.23 percent of the city's entire revenue.

The tax applies to two kinds of earned income, more specifically:

1. All salaries, wages, commissions, and other compensation of employees earned on and after January 1, 1940, by (a) residents of Philadelphia, whether earned within or without the city, or by (b) non-residents for work done or services rendered in the city. Compensation earned during the three years 1940-1942 was taxed at 1½ per cent; compensation earned after 1942 is taxed at 1 percent. The tax applies to the entire compensation; none of it is exempt.

2. The net profits earned on and after January 1, 1939, by unincorporated businesses and professions conducted in Philadelphia, whether by residents or non-residents; the net profits earned on and after January 1, 1939, by unincorporated businesses and professions conducted outside Philadelphia by residents of Philadelphia; and the shares of residents of Philadelphia in the net profits earned on and after January 1, 1939, by unincorporated businesses and professions conducted outside Philadelphia by one or more residents of Philadelphia in association with non-residents. The profit of the three years 1939-1941 were taxed at 1½ percent; those of 1942 and subsequent years are taxed at 1 percent. The tax applies to the entire net profits; none of it is exempt.

Mr. Patterson considers the fact that this tax reaches the non-resident one of the most attractive features of the scheme.

> "Through the tax Philadelphia neatly and effectively reaches these 'daylight citizens,' as the non-resident constituents of the city's working population have aptly been called.
>
> "Philadelphia thus has gone far towards solving one of the major problems faced by most big cities—how to make the large and increasing number of 'outsiders' who benefit more or less constantly from numerous costly facilities, activities and services which the city provides pay their fair share of the costs involved. . . ."

Library Displays Historical Photographs

Mrs. Ebba Monks, secretary to the Mayor, and Miss Margery Quigley, Librarian of the Montclair, (N. J.) Public Library, looking at photographs of old Montclair in the Municipal Building lobby. The pictures were selected from the Library's Montclair History collection, which has been given, singly or a few at a time, by many Montclair people, the nucleus having been assembled some years ago by the Montclair Times.

RIGHT DRESS ...FOR TOMORROW

When Johnny and his buddies come marching home, it's up to every community to have plenty of big jobs for their own men to do. One sound way to insure the future of your local citizens is to plan important public works projects NOW—projects which will give your men the steady employment they'll need during the period of "war-to-peace conversion."

The manufacture and installation of Lock Joint Concrete Pipe for your water supply lines, sewerage and drainage programs provide one of the best methods for putting your local men to work quickly—right in your own home town. Past experiences have proven that by erecting temporary local plants as much as 90% of your local labor can be used in building these dependable and economical pipelines. In addition, the Lock Joint Pipe Company buys the bulk of supplies and materials from your own merchants—and thus, most of the cost of the project remains in your community.

Whether your project is large or small, for the present or the future, your 'phone call, telegram, cable or letter to any of our offices will bring a prompt reply.

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Problems of the Small Unplanned Town

By P. H. ELWOOD
Head of Department of Landscape Architecture
Iowa State College, Ames, Iowa

ONE of the most difficult post-war problems will be the predicament of the small mid-western rural town, in the great Mississippi and Missouri basin states. In the horse-and-buggy days, turns were often located close together and in some areas they are now too numerous and have little excuse for existence, either from a business standpoint or for the advantages in living conditions we expect in modern towns. The automobile and good roads have helped the larger centers with productive hinterlands, but the small railroad or highway towns have been left to wither on the vine.

Comprehensive county planning might be one approach to the problem, with each town seeking to justify itself by capitalizing on the natural geographic, historic, and scenic land or other valuable natural or acquired assets. Those without such assets should be willing to outline gradually a long-time procedure for liquidation without undue losses or wasteful expense. Many of them may grow or can be developed through modern campaigns as centers of part-time farming, when there is a profitable industrial core, or simply as residential satellites for the not-too-distant trading center. In such cases, of course, I believe rural and county zoning will be a fundamental necessity.

New Land-Use Pattern Needed

Some of these towns may wish to combine with others in the formation of larger units for economy in some of the municipal services. In short, a new land-use pattern for small towns and their relation to the countryside is evidently needed.

Perhaps the Wisconsin pattern can be modified and adopted for areas where there is less forest and recreational land. The splendid example of Wisconsin in controlling modernized zoned subdivisions is commendable and should become widespread.

Several post-war developments may influence this pattern, that is, cheap housing, small and less expensive automobiles, and, for a comparatively few, the use of the helicopter for private and community purposes. In addition, modern cheap mass transportation should help the small towns. But great care and vigilance must be exercised to prevent further deterioration of basic resources and an attractive countryside. If our small towns can become content to remain relatively small and zone their environments, many town slums can be eliminated or prevented and a higher, more economical land-use pattern established.

Some consideration should be given to preserving the quiet restfulness and natural beauty of many of our small towns by insulating them from the high-speed super-regional highways of the future.

EDITORIAL NOTE.—A "Post-War Guide for Iowa Communities," which contains excellent suggestions for small towns generally, has just been published by the Agricultural Extension Service, Iowa State College, Ames, Iowa.

Their Leadership Acclaimed

WELL-DESERVED tributes have come in recent weeks to two leaders in municipal administration and city planning, Louis Brownlow and Charles E. Merriam.

Recognition of LOUIS BROWNLOW came in the following resolution adopted by the American Municipal Association at its annual conference in Chicago on October 27.

Whereas, for a generation he has given of his great mind and of his generous heart that the cities, and the towns, and the villages, of this Nation and of many nations are better places in which to live, and

Whereas, his tireless effort, his selfless interest, his perception of right, his wisdom, his leadership, and his devotion to the high principle that government is created first to serve man, have made him a great American citizen, and

Whereas, we of the municipalities desire his wise counsel, and especially in the years ahead when local government will reach the flower from the seed which he has planted, now therefore be it

Resolved, that the American Municipal Association in convention assembled this twenty-seventh day of October, 1944, unanimously elect MR. LOUIS BROWNLOW to be *Counselor Emeritus* to the American Municipal Association.

The salute to CHARLES E. MERRIAM came from many sources on the occasion of his seventieth birthday on November 15. In the *News Letter* of the American Society of Planning Officials for November, Louis Brownlow acclaimed Dr. Merriam as "philosopher of planning," and concluded thus a two-page tribute to his leadership in this field:

"Now at seventy, still vigorous and vigorously at work, Charles E. Merriam is planning for the peace, for a jural world order, for a better national life, for a richer urban living, and for the extension to the rural commmunities of the full opportunities for sharing in the greater gains of civilization. 'By reason of strength' we may confidently expect his next decade to be his most fruitful. It is written that 'knowledge comes but wisdom lingers.' But it was not written thus of Merriam. In him knowledge accumulates and wisdom mellows and molds it into a plan for the greater life."

A Resolution Favoring "Living Memorials"

THE Illinois Association of Park Districts adopted a resolution favoring "living" memorials in the form of playgrounds, pools, forests, recreation grounds and community centers as memorials to the war dead, at a two-day convention held recently at Peoria, Ill. This action was in line with the speech of Robert Kingery, director of the Chicago Regional Planning Association, who urged "creditable, beautiful and living memorials" instead of space-wasters in bronze and stone such as followed other wars. The full text of the Association's resolution reads:

"*Whereas*, it is the custom of the American people to provide memorials for their war veterans, and whereas living memorials such as parks, playgrounds, pools, forests, outdoor areas, recreation grounds, and community centers are all of a character to serve both present and future generations in building character and physical fitness so essential for the American way of life, we resolve to urge all communities and groups throughout the state of Illinois to plan such living memorials to those who served in the present war."

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Concrete slab maintenance costs can be reduced as much as 75% by the Koehring Mud-Jack Method. The Mud-Jack raises sunken concrete walks, curbs and gutters, driveways, streets, and airport runways eliminating reconstruction costs. Write for the new Mud-Jack Bulletin which is both illustrative and descriptive.

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Assessed Valuations and Taxes

(*Continued from page 5*)

having populations over 100,000, resumes the presentation of financial data for cities having populations between 25,000 and 100,000. The wealth of statistical data thus made available includes for these 305 smaller cities as well as for the 92 larger cities, detailed figures as to major sources of municipal revenues; expenditures for operation and capital outlays, both by function and debt service; gross and net debt outstanding and issue and retirement of debt for the fiscal year 1942; income and expense items and selected transactions of city-owned and operated water-supply, electric light and power systems, and other miscellaneous public-service enterprises. An appendix gives for all of the 397 cities the date of the close of fiscal year, the 1940 population, the land area, and the population per square mile.

New England and Middle Atlantic users of census statistics will be interested in the fact that a summary of financial data for urban towns and townships having populations over 25,000 is included.

This report (volume 3 in the 1942 series on "City Finances: 1942" is a statistical compendium, presenting the data for each city on each major subject. Topical reports (volume 2 in the 1942 series) on the three subjects of revenue, expenditure, and debt were published earlier, with some textual and tabular analysis by percent distributions, per capitas, and prior-year comparisons. Readers interested in any of these particular subjects are referred to the respective topical pamphlets comprising volume 2 of the annual series on *City Finances:* 1942. Separate and detailed city-by-city reports (volume 1 in the 1942 series) were also issued for the largest cities, in which more complete itemization is given, as well as comment principally pertinent to the single city covered.

Leadership Needed in Municipal Bond Field

(*Continued from page 81*)

ity will sell at a discount unless by special permission and under dire circumstances.

4. When they are able to do so, bond houses should inform interested municipalities as to just what the cost will be should tax exemption be removed.

5. Discourage issuing of bonds for blue-sky and made-work purposes, insist that any surpluses accruing in current operations be applied to reduction of debt, thereby making a buying margin for post-war necessary activity that can be controlled, urge a planned economy program that will allow absorption of the maximum number of men.

Another informed and eloquent voice was that of Bridgeport's Mayor, Jasper McLevy, who first endorsed Mr. Rodman's suggestions and then discussed the opportunities of the bond houses as follows:

"The bond houses could perform an outstanding service to municipal officials by an advertising campaign in THE AMERICAN CITY, treating municipal bonding scientifically. They OK a municipal bond issue. They know how and why a city reduces or loses its credit. They know when and why a city is reaching the danger points. Their campaign could show how a city can keep its credit and avoid drifting into the situation that prevailed a few years ago when cities far and wide plunged into types of financing that brought many of them to grief.

"The bond houses have much to gain by such a campaign. Besides the good will and consideration of specific cities, their counsel would tend to control municipal financing as a component of the planned economy program urged by our Comptroller. The bond houses have nothing to gain from unscientific municipal financing. As proof, in 1933 no bond house would bid on Bridgeport bonds, and it was necessary to go to the legislature to eliminate the limitation on interest rates. Now all bond houses are glad to take Bridgeport bonds.

"Over the country the life of a city administrator is usually short—one or two terms—and then a new group of officials comes in. The ramifications of a city government are so large that no mayor can grasp his job in a short tenure. Whether he is a people's mayor or political mayor, it would help him and others to know where to look to keep posted in a financial way. The bond houses are best qualified to post him. The bond attorney investigates for a specific issue. The bond house has at its command the law of averages and can best recommend the sound program."

New York Rezones for Less Congestion

THE most important change in New York's zoning regulations since 1916 has just become effective through approval by the Board of Estimate on November 30 of amendments proposed by the City Planning Commission for greater restrictions as to height and lot coverage in most parts of the city.

The amendments are not regarded as a real solution of New York's zoning problems, but rather as an interim measure for more adequate control of new construction pending a thorough revision of the Zoning Resolution.

When New York originally enacted into law the report of its Commission on Building Districts and Restrictions 28 years ago, THE AMERICAN CITY pointed out that New York had sinned so greatly in the past in land-overcrowding that its zoning had to be based altogether too much on congested skyscraper and tenement house conditions. The same editorial quoted Frank B. Williams (who still edits the monthly page of Zoning and Planning Notes in this magazine) that "Other cities can do better than we, and will be most culpable if they fail to do so. We urge them not to wait until it is too late."

This advice still holds. New York has now made an important forward step, but other steps are essential to provide a more orderly and rational land pattern and satisfactory living and working conditions for the metropolis.

Smaller cities and suburban communities will go against their own best interests if they do not prevent, before it is too late, such densities in housing developments as New York conditions may tolerate. Indeed, one of the great competitive advantages now enjoyed by cities of less than metropolitan size is their existing and potential *spaciousness* of development. To abandon this asset at the behest of over-intensive land developers would be blind indeed.

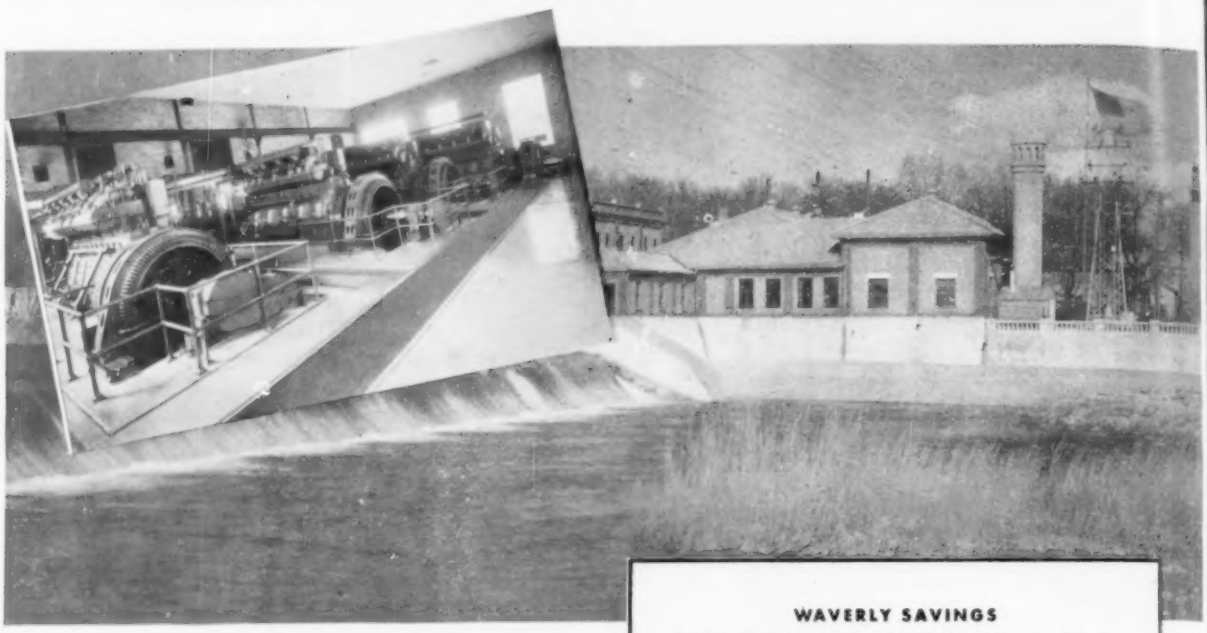
New British Law for Public Land Acquisition

THE Town and Country Planning bill, basis for a comprehensive rehousing program in Britain, has passed both Houses of Parliament and received the Royal Assent on November 17, 1944. The local authorities are ready for it with elaborate plans for rebuilding with spaciousness and dignity. This much needed legislation will provide wide powers of condemnation of "blitzed and blighted areas," and also liberal financial aid from the central government.

Controversy in Parliament over compensation to be paid for land compulsorily acquired reached the proportions of a major political debate, with Mr. Churchill's having to intervene personally in order to carry the bill forward. Originally the bill proposed that land should be acquired at prices "based on March 1939 values." The law as it finally emerged introduced the following two features: first, the owner-occupier of condemned property is in some circumstances to be allowed to receive up to 30 per cent more than 1939 value out of consideration for the high cost of the new land or premises which he is obliged to seek; and secondly, additional payments will be made to compensate for improvements which have been effected at the request of Government departments as a direct aid to the war effort.

—British Information Services, New York.

ONE OF THE BEST LIGHTED CITIES IN IOWA HAS A LOW-COST POWER TEAM



WAVERLY SAVINGS

Today, Waverly, Iowa, with four Worthington Diesels (totalling 2664 hp.) as its "partners in power progress", is noted for its excellent street lighting system. Annual savings are being accumulated at rate of approximately $20,000 a year.

Worthington Diesels Plus Hydro Save Money for Waverly, Ia.

When the City of Waverly, acting on the advice of Young & Stanley, Inc., prominent Iowa engineers, decided to add a Diesel extension to its existing hydro-electric plant on the Cedar River, there were three problems to be solved.

1. Power plant close to residential and business section had to be attractive in appearance.
2. Engines had to operate quietly, with a minimum of vibration.
3. Operation of Diesel and hydro plants had to be closely coordinated for efficiency and economy.

Minimum of Vibration Essential for Waverly Engine Installation

Worthington Diesels, with large shafts firmly bedded in rugged bases and sturdy frames, mean quiet, vibration-free power near Waverly's business and residential section.

Efficiency of this Worthington Diesel installation is shown by the following figures:

PLANT RECORD
April 1, 1943 —— March 31, 1944

Total kilowatt hours generated	2,355,100
Running-engine-capacity factor	58.7%
Kilowatt hours per gallon of fuel	12.50
Maintenance cost—per horsepower	9.6¢

For complete details of how all the problems relating to this Waverly, Iowa installation were solved by city officials, consulting engineers, and Worthington as general contractor, write for Bulletin KP-160. *Worthington Pump and Machinery Corporation, Harrison, N. J.* District Offices in principal cities.

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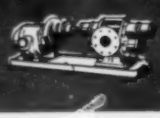


Engines: Diesel, 150 to 2600 hp . . . gas, 175 to 2880 hp . . . convertible fuel, 150 to 1730 hp.

Making War on Rats

By JOHN WARINGTON
Des Moines, Iowa

THE world is a rat's paradise. Rats will eat any kind of material that could faintly be considered edible, and especially grain. Rats mainly eat and reproduce—a single pair and its offspring left unhampered become 350,000,000 in three years.

Rats are a menace to health because they spread such fatal diseases as typhus and plague and on occasions these diseases have destroyed huge armies and altered the course of history. Will rats affect the course of this war?

Americans are dying from typhus in this country. Daily the rats multiply in open fields, hedgerows, piers, river banks, city dumps, and in every building they can enter.

That is only half the story. Rats not only are carriers of several dread diseases but they eat from two to three dollars worth of food a year and destroy ten times more than they eat. Rate invade stores and warehouses, and ruin furs, laces, silks, carpets, leather goods, and pollute food stuffs.

Here are 9 sure-fire methods of destrution:

1.—Mix one pound of barium carbonate, with five pounds of ground meat or fish. Take a scant teaspoonful of this deadly mixture (enough to kill a rat) and make it into attractive paper-wrapped baits, twisting the paper at each end and place in the rats' main runways just as it is beginning to get dark. The rat may be filthy, nevertheless, he prefers clean, fresh food.

Warning—Barium carbonate is fatal to humans, pets, and even to horses and cows, therefore, exercise caution by placing the poison under an inverted box with many holes in the sides large enough for only a rat to enter. Heap on it all the rubbish you can find, until it looks like a huge rubbish pile.

2—Buy several trained ferrets and civet cats and a troop of dogs. Release the hungry ferrets and civet cats in the rat-infested area and they will climb poles, dash across beams, enter and follow the rats' runways, chasing the rats out and into the mouths of the yelping dogs.

Warning—Ferrets and civet cats may run into sharp, canine teeth.

3—One rat exterminator explains, "Rats are so cunning that it is useless to scatter poisoned food at will. First, I get the rats' confidence by giving them a square meal of ground corn and wheat made into a paste with hot water. As they eat, I stroll around. They run away but not for long—the meal is too tempting. The second night I wander about the vicinity. The third night I feed them again and on the fourth night frequent the vicinity. By then they consider me a kind of personal father. The next night I prepare a special arsenic or phosphorous feed. They gorge themselves, run for a drink, and over they tumble—dead."

4—Kill rats plus fleas. Fumigate with calcium cyanide in buildings where floors are tight, and in burrows and buildings where concentrations of gas can be built up rapidly. When the dust, calcium cyanide, comes into contact with the moisture in the air or in the soil, a very poisonous gas is formed which destroys rats and fleas almost at once. This gas is extremely effective on a larger scale and is harmless for humans when used with proper precautions. It is used all over the world where diseases spread by rats are a national problem. City departments of Chicago, St. Louis, Dallas, Fort Worth, Houston, and many other cities use this method of control.

5—Technique plus traps. "Half of the art is to avoid smells rats don't like," says one old-timer in the business. Smoke or the scent of dogs or cats will keep rats in their holes till Doomsday. When trapping, wear rubbers and rubber gloves. Use the huge guillotine, steel and large French wire cages and bait them with fried bacon or Vienna sausage.

6—Drown the rats. The most inexpensive, yet one of the most effective method is to fill a tight barrel half full of water and pour over it a bushel of oats. When the rats become wary of this method cover the barrel with heavy building paper and spread over with a tempting feast of bits of fried bacon mixed with ground corn for two successive nights. On the third night slash the paper in the center and over the center suspend a small ball of fried bacon.

7—The flame thrower, one of the war's own tools is effective indoors and out, sucking out the life of the rats and fleas and ticks as well. It is used extensively in South America. Let the flames pass slowly but steadily over surfaces and every living thing on the surface, in the crevices, and in the cracks dies. Flames needn't touch the four-footed predators for in burrows and in tight enclosures monoxide gas or lack of oxygen snuffs out life.

8—Vanity, vanity! Another rat trapper explains his method: "A rat sees himself in a small mirror; walks closer to investigate, and a trap door opens under him. At the bottom of the cage other mirriors confront him. Other rats, hearing his excited squeaks, come out to investigate and the race is on. I invented this method in the first World War when nothing but my vanity trap could get the wily, old fellows that overran the trenches.

9—Mix one pound of powdered red squill with 10 pounds of either cereals, corn meal, ground meat or fish, or other foods, and make into one ounce pellets. Red squill has the advantage of being fatal to rats but is considered to be safe to humans, domestic animals and pets.

Employment of the Handicapped Veteran

WITH much of the responsibility for the veteran's return to normal life falling upon industry, individual companies today are making plans not only to take back into their organizations those of their own employees who have become disabled but to absorb as many other handicapped service men as possible. Based on the plans of 54 companies, the Policyholders Service Bureau, Metropolitan Life Insurance Company, has issued a report, "The Employment of the Handicapped Veteran."

The experience of companies employing handicapped workers has been that the physically deficient man may excel in his job if his rehabilitation has been carefully supervised and he is employed on the basis of his remaining capabilities. Foremen report that handicapped workers are a steadying influence in their departments and they compare favorably with normal workers in four respects—absenteeism, labor turnover, accident rate, and productivity. A copy of this report is available to executives sending requests on their business stationery. Address: Policyholders Service Bureau, Metropolitan Life Insurance Company, 1 Madison Avenue, New York 10, N. Y.

The survey covers such problems as: job analysis from the standpoint of the physical requirements of the job, adaptation of jobs to the handicapped, determination of the veteran's abilities and limitations, education of the foreman in the treatment of the handicapped, training the handicapped, their medical checkup, their adjustment to plan conditions, and transfer to other jobs.

★ ★ ★ *Engineered for Service* ★ ★ ★

71,393

A Number that's Important to You *

71,393 *Dual* Parking Meters have gone into service since the first installation in Oklahoma City in July, 1935 . . . and that's convincing evidence of their superiority and wide acceptance among municipal officials.

War demands halted meter production in the spring of 1942. But with peacetime pursuits indicated in the not-too-distant future our engineers have worked on improvements and refinements to make the best meter even better.

Prepare for postwar traffic control now. Dual engineers are available to help study your parking problems and make recommendations for their solution. Why not take advantage of this free survey service?

**More* Dual *Automatic Parking Meters are in use than any other two makes* combined.

THE DUAL PARKING METER Company

Harter Bank Building
★
CANTON 2, OHIO

Policy Determination Needed

(*Continued from page 51*)

cerned, because of the fact that this state already, to a greater extent than any other in the Union, has relieved the financial burdens of local units of government in the state finances the entire program of public education and highways.

FELIX A. GRISETTE
Managing Director,
State Planning Board

Virginia

It does not appear that either the federal government or the state is justified in present circumstances in making provision for grants-in-aid to the localities, either municipalities or counties. Liberal provisions for loans would be very helpful both for planning and for construction. I can see no sound reason at present for the federal government contemplating grants-in-aid for construction or for planning, but it would be stimulating to provide funds as loans for the advance planning of needed public works for quick application when and as heavy construction programs become necessary.

RAYMOND V. LONG
Director
State Planning Board

West Virginia

I believe that any aid given to a state by the federal government, or any aid given by a state to any municipality should be based on a reasonable contribution from the local unit. Theoretically, the ideal is 50-50. If we are going to have federal aid to a state in any post-war program the state should put up half the funds. Likewise, the municipality.

State Planning Board
Chairman
C. R. ORTON

Wisconsin

As far as our state is concerned, it is prohibited by its constitution from aiding in such a program. Highway improvement and forestry are the only kinds of works of internal improvement in which the state may participate.

As far as the federal government is concerned, my opinion is on the conservative side. In discussing public works improvements within the state, I have said repeatedly that any public works improvement proposed should be subjected to a certain test before being included in the program. If this project is such that the community feels that it is so necessary or desirable that it is willing to carry it out with its own money if no aid is available from outside sources, then it should be selected; otherwise not. I do not think that any kind of a project ought to be set up contingent on federal funds being available. To do this is an invitation to extravagance and the evils that go with it.

M. W. TORKELSON
Director of Regional Planning
State Planning Board

Central Heating in Escanaba

FOLLOWING the lead established by Virginia, Minn., which early this year became the first city in the United States to go on complete central heating, the City Council of Escanaba, Mich., is considering the installation of a municipally owned plant to heat all of its homes, stores, schools and churches from one central station.

The Michigan city of 15,000 population already has made a start in this direction, constructing a small central heating plant in 1937 to serve a limited number of customers in the downtown area, the International City Managers' Association reports.

Local interest in the municipal service led the City Council recently to ask for a survey and recommendations by the City Manager with regard to expansion of the central heating system to include the entire community.

Estimated Costs

The Escanaba survey showed that community-wide heating by the central unit was feasible from economic and engineering standpoints, and that such a system could meet operating and maintenance costs, taxes and depreciation. To supply the entire system with heat would require a capital outlay of $3,190,000, about a third of this amount for the plant and two-thirds for distributing mains.

Operating costs for the enlarged system are estimated at $240,000 yearly, compared to present expenditures of about $305,000 by individuals and private concerns for coal for individual heating units. Annual revenue from steam at 78 cents per 1,000 pounds and sale of electricity generated by the steam turbines would total $531,000, but the net profit would be small because annual capital costs—taxes, depreciation and interest on investments—total more than $240,000. Capital costs would be reduced materially if the project is financed in part by special assessment.

The most unfavorable factor in carrying out the plan is the high initial cost of the underground system plus the cost of converting individual heating equipment to steam heating, which would range from $200 to $500 per dwelling unit.

Recommendations to the City Council were that the present plant be expanded up to a capacity of 50,000 pounds of steam per hour on a pay-as-you-go basis sufficient to serve the downtown area; that plans be made and an assessment and financial policy be established to enable the city to expand the plant as rapidly as economic conditions make subsidies available; that no expansion be made beyond the downtown area unless at least 80 per cent of the consumers in the area to be served agree to convert their heating systems and purchase heat from the central municipal system.

Model Act for Airport Zoning

ON November 7, the Civil Aeronautics Administration of the U. S. Department of Commerce issued jointly with the National Institute of Municipal Law Officers, the fifth Model Airport Zoning Act to be drafted and recommended by CAA or NIMLO, or both. The new draft is entitled: *An act to empower municipalities and other political subdivisions to promulgate, administer, and enforce airport zoning regulations limiting the height of structures and objects of natural growth, and otherwise regulating the use of property, in the vicinity of airports, and to acquire, by purchase, grant, or condemnation, air rights and other interests in land; to provide penalties and remedies for violations of this act or of any ordinance or regulation made under the authority conferred herein; and for other purposes.*

It is recommended that this latest model law be enacted in all states and territories lacking legislation which either is patterned upon one of the earlier model acts or is considered substantially equivalent, and that all such legislation be amended to conform to this model in substance. As of November 7, 1944, there are twelve states and one territory which have enacted one or another of the earlier model acts, or legislation substantially similar thereto. These are Alabama, Arkansas, Illinois, Louisiana, Maine, Maryland, Massachusetts, Minnesota, New Hampshire, New Mexico, North Carolina, and South Dakota and the Territory of Alaska. In addition, there are two states, Michigan and Oklahoma, having airport zoning legislation which while original is considered sufficient to permit some degree of airport approach protection by the zoning method.

Copies of the model act are available on application to either of the sponsors, Washington, D. C.

ONE MAN..ONE MACHINE

perform all operations on.. THE DROTT BULL CLAM SHOVEL METHOD OF SANITARY FILL

DIGGING FIRST TRENCH. Material excavated from first trench is used to build truck ramp... from succeeding trenches for covering refuse.

COVERING REFUSE. Digs, transports, covers. Skids material, except when turning or dumping. Refuse is completely sealed every night.

COMPACTING REFUSE. All refuse is thoroughly chewed and compacted by tractor traveling back and forth and applying down pressure on clam.

GRADING, MAINTAINING. Finished fill is graded to provide adequate drainage... kept smooth for quick, safe truck travel.

DROTT BULL CLAM SHOVEL FITS ALL MAKES AND CURRENT MODELS OF CRAWLER-TYPE TRACTORS, from 39 to 120 h. p. Four sizes. 1, 2, 3 and 4 yd. capacities.

Operated by
DROTT POSITIVE, CLOSED HYDRAULIC SYSTEM
SMOOTH • QUICK • DEPENDABLE
Keeps dirt and air out... keeps oil in! Used successfully on Drott equipment for many years.

GET THE COMPLETE STORY!
Send for this Book
"Answer To Your Waste Disposal Problems... with the Drott Bull Clam Shovel."
FREE

DROTT UNIVERSAL EQUIPMENT

HI-WAY SERVICE CORPORATION
3841 W. WISCONSIN AVE. • MILWAUKEE 8, WIS.

Wartime Water Rates—XV

This month two cities show increases in water rates and two, decreases over those previously published in THE AMERICAN CITY.

Buffalo, N. Y.

Rates: **(Quarterly basis)**

First	9,000 cu. ft.	$1.10 per 1,000
Next	9,000 " "	.77 " "
All over	18,000 " "	.44 " "

The minimum charged per quarter is $3.30 for a 5/8" meter and for other meters as follows:

		Minimum Allowance
3/4"	meter	$16.48	15,000 cu. ft.
1"	"	22.00	20,000 " "
1 1/2"	"	33.00	30,000 " "
2"	"	44.00	41,714 " "
3"	"	55.00	56,000 " "
4"	"	110.00	169,000 " "
6"	"	220.00	419,000 " "
8"	"	330.00	669,000 " "
10"	"	440.00	919,000 " "
12"	"	550.00	1,169,000 " "

General Data:

Population served—600,000
Services—96,730
Meters—16,886
Hydrants—7,919
Miles of main—792
Supply—Lake Erie
Treatment—Chlorine
Tap water—136 ppm $CaCO_3$, pH 7.8
Average consumption—120 mgd
Plant capacity—240 mgd

Consumer Costs:

3,000 gals.	(400 cu. ft.)	$1.10 (min.)
5,000 "	(667 " ")	1.10 "
10,000 "	(1,333 " ")	1.47

Metered rates were raised 10 percent in order to maintain a self-supporting structure. About one-half of our water sales are to be metered customers—the remainder are on flat rate; the latter being for the most part householders not affected by an increase inasmuch as increased demands for service came from the many war industries. The metered rate increase has absorbed the added cost of chemicals, fuel, supplies and labor.

ALAN D. DRAKE
Director of Water

Waukesha, Wis.

Rates:

RESIDENTIAL AND COMMERCIAL RATES

First	25,000 gals.	$.25 per 1,000 gals.
Next	25,000 "	.20 " " "
"	300,000 "	.15 " " "
All over		.10 " " "

INDUSTRIAL RATES

First	8,000 gals.	$.25 per 1,000 gals.
Next	8,000 "	.20 " " "
"	100,000 "	.15 " " "
"	300,000 "	.10 " " "
"	584,000 "	.07 " " "
All over		.065 " " "

Consumers having meters larger than 3/4" are charged a sliding minimum. Industrial meters are read and billed monthly. Residential and commercials are read and billed quarterly.

General Data:

Population served—22,400
Number of services (100 percent metered)—4,425
Number of hydrants—441
Miles of water main—54.86
Supply—wells
Treatment—none
Tap water—300 ppm $CaCO_3$, pH 7.8-8.0
Plant capacity—4.2 mgd
Average consumption—1.9 mgd

Consumer Costs:

3,000 gals.	(400 cu. ft.)	$ .75
5,000 "	(667 " ")	1.25
10,000 "	(1,333 " ")	2.50

Rates have been reduced by 20 percent over those previously recorded in THE AMERICAN CITY for August 1935.

A. P. KURANZ
Manager

Baraboo, Wis.

Rates:

FIRE PROTECTION SERVICE

The city is charged for fire protection service $10,500 per year.

For all extensions of fire protection service a charge of six cents per lineal foot of pipe shall be assessed per annum on the basis of length of main put into use between hydrants placed, plus a fixed charge of $8.00 per hydrant set for each hydrant added to the system.

GENERAL SERVICE

Minimum charge per quarter—one customer on a meter:

3/4"	meter	$1.50
3/4"	"	1.75
1"	"	2.25
1 1/2"	"	4.00
2"	"	6.00
3"	"	12.00
4"	"	18.75
6"	"	25.00
Each additional consumer		.66

CONSUMPTION CHARGE

First 1,000 cu. ft. or less used per quarter—minimum bill for each size meter
Next 4,000 cu. ft. used per quarter, 13.5c per 100 cu. ft.
Next 15,000 cu. ft. used per quarter, 10c per 100 cu. ft.
Next 40,000 cu. ft. used per quarter, 7c per 100 cu. ft.
Next 140,000 cu. ft. used per quarter, 4.5c per 100 cu. ft.
Over 200,000 cu. ft. used per quarter, 4c per 100 cu. ft.

UNMETERED SERVICE

	Per Quarter
Residences, 6 rooms or less, one faucet and one family only	$2.00
Bath, in addition to first faucet	1.25
Water closet or wash basin, in addition to the first faucet	.65
Residences in excess of 6 rooms to be metered	
Churches	2.00
Lodge halls	2.00

PRIVATE FIRE PROTECTION SERVICE

4" meter	$6.25
6" "	12.50
8" "	18.75

General Data:

Population served—9,000
Number of services—2,100
Number of meters—1,993
Number of hydrants—221
Miles of main—25
Supply—wells
Treatment—chlorination only
Tap water—320 ppm $CaCO_3$
Plant capacity—2.8 mgd
Average consumption—0.7 mgd

Consumer Costs:

3,000 gals.	(400 cu. ft.)	$ .59
5,000 "	(667 " ")	.95
10,000 "	(1,333 " ")	1.85

Rates represent about a 10 percent increase over those previously recorded in THE AMERICAN CITY for May 1939. Rates went into effect on October 1, 1942.

LELAND SHAW
Superintendent

Manitowoc, Wis.

Rates:

First	200 cu. ft.	$0.35 service charge and/or minimum monthly bill
Next	800 " "	0.14 per 100 cu. ft.
"	2,000 " "	0.10 " " " "
"	12,000 " "	0.08 " " " "
"	35,000 " "	0.05 " " " "
"	50,000 " "	0.04 " " " "

MINIMUM BILL

5/8"	meter	$ .35
3/4"	"	.50
1"	"	.75
1 1/2"	"	1.25
2"	"	2.00
3"	"	4.50
4"	"	8.00
6"	"	16.00
8"	"	30.00

General Data:

Population served—Approximately 29,000
Meters—5,678
Supply—Gravel-packed wells, plus emergency supply connection with Lake Michigan
Treatment—Chlorination only
Water—170 to 380 ppm $CaCO_3$
Miles of mains—68
Hydrants—436
Public fire protection service—$38,000 per year
Plant capacity—12 mgd
Average consumption—3 1/2 mgd

Consumer Costs:

5/8" meter.

3,000 gals.	(400 cu. ft.)	$0.63
5,000 "	(667 " ")	1.00
10,000 "	(1,333 " ")	1.80

Rates represent a reduction of 10 to 15 percent under those appearing in THE AMERICAN CITY for June 1934. Minimum bills now depend on the size of the meter.

W. C. STAEFFLER
General Manager
Manitowoc Public Utilities Commission

How to Assure a Brighter Future for Your Town

WITHIN a few days or, at most, a few weeks after V-Day the thoughts of your people will turn from winning the war to enjoying the peace.

Then brightness and safety after dark will keynote America's most progressive communities . . . and the towns, big and small, that have planned well will be the ones which will attract returning service men, new industries, the best people.

Assure your town a bright place in that future with adequate street lighting in residential areas as well as business districts. And make sure your new street lighting system goes in *to stay* with Union Metal tapered, tubular steel standards.

Union Metal street lighting standards are light in weight, economical to install and maintain . . . and they're designed *right* by qualified street lighting experts to distribute the light over the street where it is needed.

For catalogs and other information on the styles and types which will be available to you after the war, write The Union Metal Manufacturing Co., Canton 5, Ohio, or consult your electric utility.

UNION METAL

Largest Producers of Street Lighting Standards

Outdoor Lighting

STREETS — HIGHWAYS — FLOODLIGHTING

Not Just a *LIGHT* on the Corner

Good Illumination and Safe Transportation Interdependent

By E. B. KARNS
Manager, Street, Aviation and Marine Lighting
Westinghouse Electric and Manufacturing Company, Cleveland, Ohio

TO point out an old saying, "To get an indication of where we are going in night traffic safety, let us see whence we have come."

The outstanding factor of automotive transportation has been its increasing speeds, each increase causing more traffic accidents and death.

Many new and improved safety factors have been introduced, all of which have proved more or less satisfactory in the daytime, but with exceptions such as Scotchlite traffic signs. They are not nearly as effective at night. The reason is simple—man cannot see in the dark. Thus, 60 percent of traffic fatalities occur at night when there is only 30 percent of the traffic.

Visibility by Contrast

Since the start of the war street lighting engineers have had to turn attention from saving lives on the streets to saving cargo ships at sea, either by dimming out or turning off street-lighting systems in the coastal areas. From this, much has been learned about how we see at night. The eye is just like a camera. With lots of light it takes a snapshot. If the light is bad, it takes a time exposure.

War has also taught us the part that glare plays in vision. Glare, as found in street-light glare, is of two types, both the result of improperly controlled light distribution. *Discomfort glare* is produced by the excessive contrast between a brilliant light source and its background. *Blinding glare* depends on the total amount of light from the source in the direction of the observer, and the angle which it makes with his line of vision.

Visibility is achieved by two principal methods:

1. *Discernment by Surface Detail*—The object itself is illuminated with sufficient intensity of light to make it visible. Light is reflected from the object toward the observer.

2. *Discernment by Silhouette*—The object is seen in silhouette against a brighter background. This has been found to be the most economical and effective method of providing high visibility. On freeways and highways, traffic moves faster, vision is not obstructed by physical structures, and pedestrian travel is light. Here attention is focused on the road some distance ahead and detailed discernment is less important than discernment by silhouette or contrast.

Traffic safety lighting has brought a new technique. In order to appear bright, a road surface must reflect light toward the motorist's eye. In addition, for best visibility, the road surface should appear uniformly bright so that continual adaptation of the eye to changing brightness is not necessary. It is important that the pavement surface shall appear uniformly bright to the driver under all changes in weather

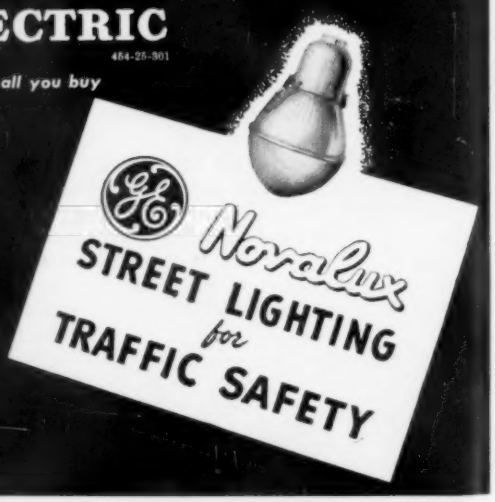
AFTER DARK ....60% of the deaths

Traffic fatalities in our last year of peace exceeded 40,000—more than our battle deaths in two years of war. Of these fatalities, 60 per cent occurred after dark—when only 33 per cent of the traffic is normally on the streets. Now consider the increased driving hazard that's coming when war restrictions end! Isn't that reason enough to give "Street Lighting Improvement" a high-priority place in your plans for civic betterment? *General Electric Company, Schenectady 5, N. Y.*

GENERAL ELECTRIC

464-25-801

Buy all the BONDS you can—*and keep all you buy*



and road surface conditions. Such uniform brightness is easily produced on a light dry road surface.

Uniform surface brightness is much more difficult to obtain on a wet or specular road surface. Such a surface is much like a mirror and a beam of light striking it will be reflected as a beam and is known as *specular reflection*. In order to produce a uniformly bright area in front of the car on a specular surface, it is essential that much of the direct reflection of light from the pavement shall be in the direction of the motorist.

Old Luminaires Won't Do the Job

The old-time luminaire was mounted low and along the curb. The distribution was such that this luminaire distributed much of the light to the roadway at such angles that reflections were directed skyward or traversely. As seen in an accompanying illustration the distribution of light was uncontrolled and spilled in all directions. This rendered the road surface black when viewed from the driver's seat.

With the "new technique," the luminaires are designed to deliver light to the pavement at such low angles that surface reflections are kept within the normal vision of the automobile driver. This renders the pavement bright when viewed from the driver's seat. By suspending the units well out over the roadway, a bright pavement surface can be produced in front of the car on a specular surface.

All pavements when wet are predominantly specular. When dry, they vary from predominantly specular to largely diffuse. But all pavements have an element of specularity, so that an installation designed for maximum effectiveness under the worst condition (a wet surface) will improve the visibility on the roadway under any weather conditions.

Visibility Is the Thing

It is not the "lumens and watts and footcandles" used that constitute good street lighting. It is the end-product—"visibility" that counts. For example, an automobile driver proceeding toward the setting sun in the late afternoon has many thousands of footcandles of illumination, and practically no visibility.

The street-lighting engineer in the future will talk of "foot-lamberts" of roadway brightness rather than candlepower as in the past. A foot-lambert is the brightness of a surface which emits one lumen per square foot. It is usually used to define the brightness of reflecting surfaces.

Unfortunately, few persons in fields closely related to the problems of public safety, even in fields dealing directly with the problems of traffic safety, have realized the vital relationship of darkness with death.

Decreased speed is readily recognized by safety authorities as an effective remedy for daytime accidents and public officials have no hesitation in enforcing speed restrictions at locations where obstructions limit distant vision. But when sight distance is impaired by the veil of darkness, the remedy is *adequate street lighting*.

Some traffic authorities predict that within 5 years after the close of the war, motor-vehicle registration will reach 40,000,000. Therefore, any planning should be done to meet this expected traffic condition rather than the present condition, or the conditions that existed previous to the war. Traffic safety lighting installations consist of the correct lamp size, in the correct luminaire at the correct mounting height and correct spacing.

Street Lamps

The incandescent lamp was introduced first for outdoor lighting at the Chicago World's Fair in 1892. Although this lamp has reached its apparent maximum efficiency of approximately 19 lumens per watt in some sizes, it is just beginning to be effectively used for street lighting.

The sodium lamp, being a monochromatic light source (golden yellow in color) does not lend itself well to producing visibility by detailed discernment. Therefore, it is not suitable for use on business streets. Then too, the light source is rather large (approximately 10 x 13¾ inches) making it very difficult to design an optical system to give good control of the light and to eliminate glare. The nature of this lamp is that its color lends itself well for marking hazardous locations such as railroad crossings, bridges, bad curves and intersections of unlighted highways.

The high intensity mercury lamp has in the last ten years been installed in a number of cities in the United States and Canada. In Europe and in Australia it has gained even wider popularity than in this country. Perhaps the largest single installation in the United States has been in Denver, Colorado.*

Mercury vapor lamps give off high intensity blue-white light. This lamp is highly efficient, producing approximately 40 lumens per watt. The arc source is much smaller than the Sodium arc and therefore is much more easily controlled. Originally it was thought advisable to introduce some incandescent light to "color correct" the mercury, and many early installations had one or two incandescent lamps in the luminaire. However, actual installations have proved that it is not necessary to color correct and that the straight mercury vapor lighting is quite satisfactory.

Some day the fluorescent lamp may find its way into street lighting. At present much study is being made as to the practical use of fluorescent lamps. However, with present-day lamps their use in street lighting would represent a much more costly installation than the use of incandescent. This is due primarily to the low light

* To be described in an early issue of THE AMERICAN CITY

A fine example of high visibilty secured economically by silhouette or contrast.

WILL THIS HAPPEN TO YOUR POST-WAR LIGHTING PLANS?

Many post-war lighting plans will be obsolete before they leave the drafting boards... Others will never reach the stage of installation . . . They will be out-moded because they had been prepared without knowledge of the revolutionary, precedent-shattering

LIGHT FLUX ANALYSIS

This technique, developed during the war emergency, radically changes lighting conceptions, setting up entirely new standards of present-day illumination.

Now this new procedure can be revealed... Get the basic facts about LIGHT FLUX Analysis—and its proper application to your individual post-war lighting projects.

Consult Holophane Engineers

Holophane design and research engineers at headquarters collaborate with application engineers in the field in two broad endeavors: (1) to explore and develop new advancements in illumination generally; (2) to provide the efficient and economical solution to any specific lighting problem...The Holophane Engineering Department offers, without charge, consultation and specifications as a service to architects and engineers.

ARMY NAVY

Holophane Trade Mark

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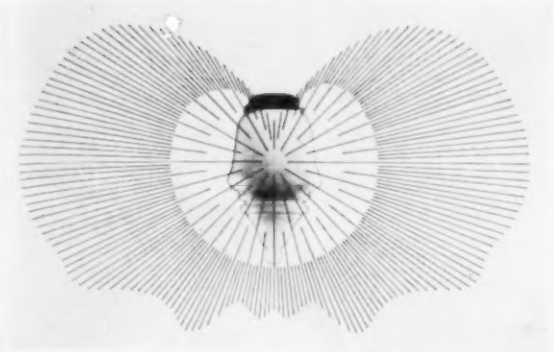

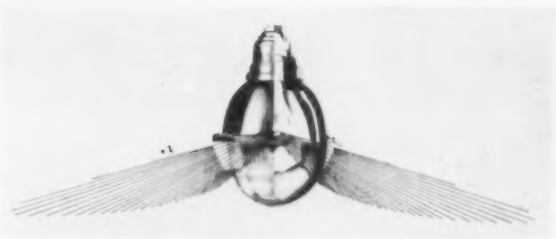

ABOVE: *New luminaires designed to deliver light to the pavement at low angles.*

LEFT: *Old type luminaires directed much of the light skyward, resulting in a black road surface.*

output per foot of lamp, thereby requiring too many lighting units to do a given job. Then too, there are certain other characteristics of the lamp itself that make it undesirable for outdoor use in cold weather.

The incandescent lamp will be used predominantly due to its small light source which gives good control of the light and which therefore results in a high utilization factor. There will be, however, a greater use of the high intensity mercury vapor arc lamp. It will rapidly gain acceptance for use on both streets and highways.

Street lighting luminaires of the immediate future will no doubt be of the shielded type that deliver their maximum candlepower at angles of 65 degrees to 80 degrees from vertical with the light source well up in the reflector. The enclosing glass will be smaller and less conspicuous than that used in the past. These units will be mounted at a height of 30 to 35 feet above the street surface.

On business streets where both vehicular and pedestrian traffic are heavy, it is necessary to have both high pavement brightness and high levels of vertical illumination, because our range of vision is limited to short distances and pedestrian traffic is heavy. Moreover, the bright background created by lighted store windows and signs reduces contrast. It is necessary to have sufficient light on the objects themselves to see them and their direction of movement quickly.

So for the business street we will see 2 to 2.5 footcandles average intensity used. This is 4 to 5 times the intensity now used in most installations. Yet with the use of new modern luminaires with their high efficiency in the control of light, *these intensities can be had with only a small increase in cost as compared with the vast increase in illumination.*

The Reason

Today, safety is the primary reason for street and highway lighting. But adequate street lighting endows the town with other blessings: (1) protection against crime and child delinquency, (2) aids the Fire and Police Departments, (3) increases business, and (4) nourishes civic pride.

Insurance companies say that the average cost per traffic fatality is approximately $5,500 death claim, not including property damage. Adequate lighting will reduce night accidents by 40 to 50 percent. It has been said that for every dollar invested in street lighting, $2.75 is saved in death claims, property loss and crime. Good street lighting is not costly.

Are Your Plans Ready—or Under way?

Since in most cases it is not possible to change over an entire installation at one time, it is well to lay out a progressive program, taking the most fatal streets and lighting those first and from these, branch out to include the entire city. Plan now for the entire job in order to assure uniformity of light, equipment and method of installation throughout your city.

Circuits for Lighting Control

CITY engineers and officials interested in outdoor lighting who found last month's "Elements of Control for Outdoor Lighting Circuits" useful, should turn again to page 119 of THE AMERICAN CITY for October and examine the wiring diagrams in the light of the following supplementary captions. These captions, as well as the October article, were prepared by J. L. Cissell, Application Engineer, South Bend Controller Company, South Bend 15, Ind.

FIGURE 1. Energizing the 120 volt 60 cycle control circuit closes the oil switch load contacts to energize the series lighting circuit. An open circuit fault in the series circuit initiates operation of the protective relay to de-energize the control circuit and open the oil switch contacts to eliminate the dangerous voltage.

FIGURE 2. Energizing the Series-Multiple Relay operating coil from a series lighting circuit closes the relay load contacts and energizes the multiple lighting circuit. The multiple circuit is shown extended to energize the multiple relay coil to control an additional multiple lighting circuit.

FIGURE 3. The Multiple Relays with load contacts Normally Closed with the coil de-energized assure positive control of the ON schedule since a fault in the control circuit de-energizes the relay coil to close the relay load contacts. The application indicated by Relay No. 3 is required only for long pilot circuits.

FIGURE 4. The Multiple Relays with load contacts Normally Open with the coil de-energized assure positive control of the OFF schedule since a fault in the control circuit de-energizes the relay coil to open the relay load contacts. The application indicated by Relay No. 3 is required only for long pilot circuits.

FIGURE 5. The Normally Closed Multiple Relay with the special series coil operates to energize an auxiliary lighting circuit following failure of the preferred circuit lamps. Specifications for this application must specify the circuit voltage rating and the total watts for the lamps in each circuit.

FIGURE 6. A typical control system is shown for a sports field with floodlighting designed for football, softball, or baseball. The Oil Switch energizes the primary to the transformer bank and the Normally Closed Multiple Relays disconnect the part time lighting.

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Conducted by Traffic Control & Facilitation Committee, Institute of Traffic Engineers, 60 John St., New York

D. Grant Mickle, Chairman; Donald S. Berry, Fred W. Fisch, Maxwell Halsey, Wilfred F. Irvin, Harry C. Koch, Philip S. Mancini, Claude N. Maurer, W. F. Milner, W. L. Robinson, I. S. Shattuck, George M. Webb

Traffic Control Devices Save Lives

Zone and Walk-Wait Lights

By W. F. MILNER
Traffic Engineer
Indiana State Highway Commission

INDIANAPOLIS has installed 84 street-car loading zones at 40 intersections during the last 15 years. Although the concrete piers protecting the zones were equipped with red warning lights, motorists were crashing into the piers at night.

The traffic engineering department found the red lights were not sufficient warning to motorists. So an overhead globe was installed at each zone—the upper half being red and the lower half white, to show the pier plainly at night.

At the 22 loading zones thus far improved, accidents were reduced two-thirds. Similar action will be taken on other loading zones, and on modernizing the entire zone design.

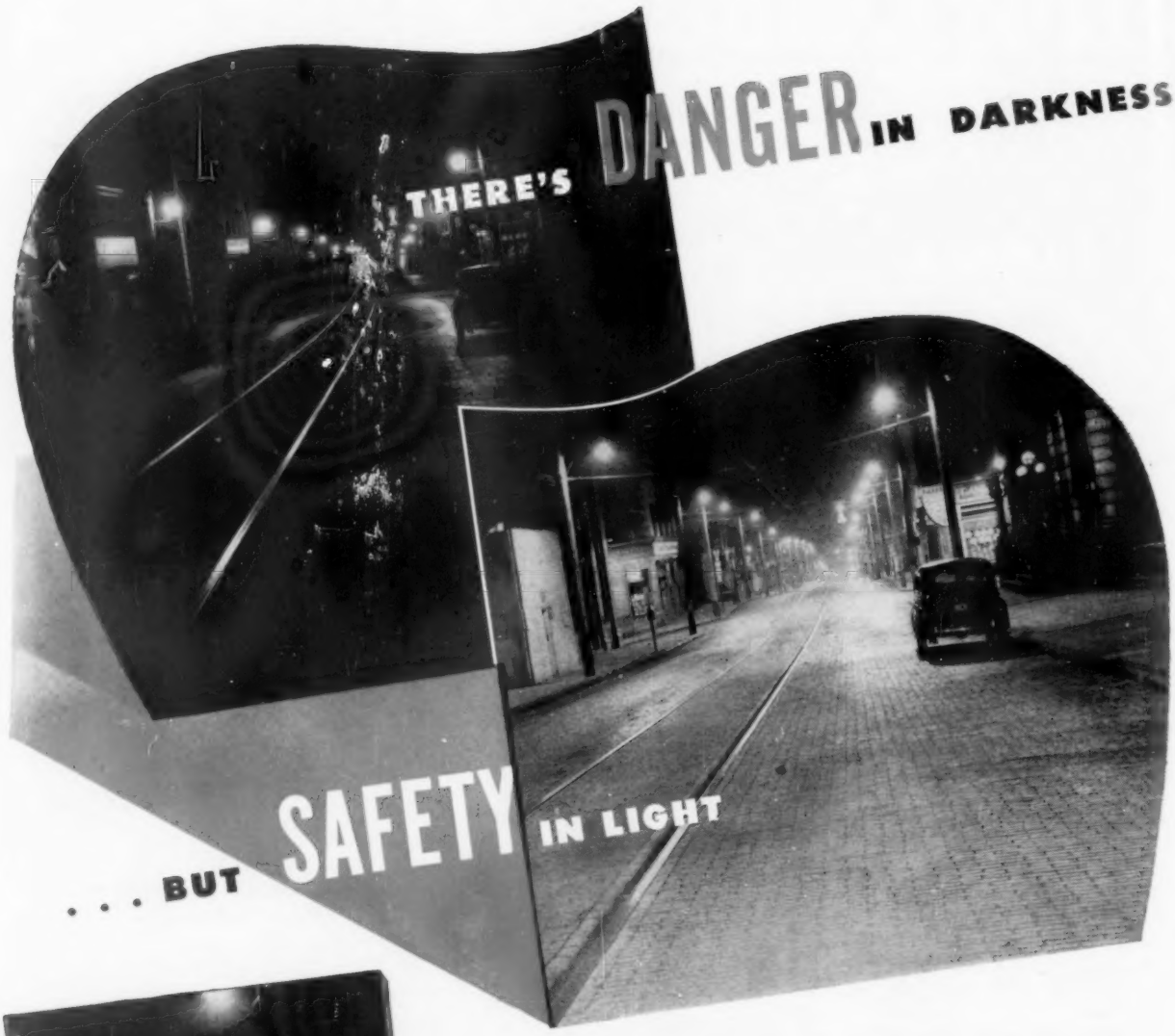
When the city, a year ago, undertook stricter pedestrian control, it was found that the traffic lights, timed for continuous flow of vehicles at fairly slow speeds, were conflicting with pedestrian needs. The 40-second interval between light changes was too fast to permit all pedestrians to cross our 80-foot downtown streets. We found a 60-second light best at major crossings. While this meant a longer wait for some pedestrians, police effectively halted jaywalking and years of confusion over pedestrian traffic came to an end.

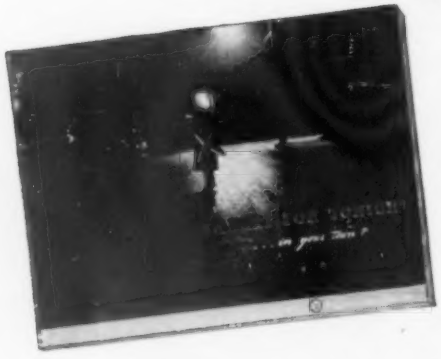
Interruption of continuous traffic movement on main streets due to the 60-second light interval was more than offset by improved conditions on all cross-streets. A survey at the seven main downtown intersections showed the new signal timing reduced total vehicle stoppage for lights from 48 to 28 percent.

We experimented with various pedestrian signals, and found the "Walk-Wait" light best. These lights free police officers from traffic duty, and the state highway department also is recognizing their value by adopting them.

WAIT

WALK





Dark streets breed danger . . . not only in increased accidents but in increased delinquency, robberies, assaults and vandalism. There's a challenge to every thinking public official in that cities and towns with the *lowest* per capita investment in street lighting suffer the *highest* rate of night fatalities and crime.

By contrast, those enjoying good lighting are also the safest.

Now is the time to plan for adequate Public Safety Lighting in your community . . . *before* the added build-up of traffic that will come as restrictions are lifted from gasoline, tires and speed. Westinghouse Street Lighting Engineers, with years of experience in every phase of street lighting, are aiding many cities in studying this problem. Their services, together with accumulated information and data gathered from many towns and cities, are available to any community. Get in touch with your nearest Westinghouse office or write Westinghouse Electric & Mfg. Co., P. O. 868, Pittsburgh 30, Pennsylvania. J-04016

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"Target for Tonight", a new booklet just off the press, contains facts, figures and actual "before-and-after" case studies that throw new light on the subject of Public Safety Lighting. It is available, without obligation, to any interested civic leaders or municipal officials. Write for your copy.

Westinghouse

PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE

Signal Retiming and No Parking—a Wartime Measure

OVER-ALL speeds on main downtown streets of Fort Wayne, Ind., have been doubled and tripled, and accidents cut 37 percent, as a result of wartime traffic signal retiming. A further program of parking restrictions on 9½ miles of city streets has resulted in a substantial accident reduction on these streets.

The wartime industrial traffic problem brought a need for these programs, and led to a speed-and-delay study in July 1942, including the cross-town traffic flow from the East Side industrial district. We found speeds on main routes across the city varied from four miles an hour in congested districts to over 40 miles in outlying sections, the average being about 16 miles per hour for a trip across the city. The following tables summarize some results of signal retiming and parking prohibitions:

Before Signal Retiming
(7-8 blocks downtown)

Street	Time	Delay	Over-all MPH
Wayne	5:40	2:20	7.4
Jefferson	5:37	2:33	6.5
Washington	9:05	5:29	4.1
Berry	7:27	3:58	5.6

After Signal Retiming

Wayne	3:50	0:45	10.9
Jefferson	3:00	0:25	12.3
Washingn	3:00	0:35	12.3
Berry	3:28	0:46	12.0

Downtown Street Accidents
(6 months before and after)

	Medial	Marginal	Internal	Intersection	Pedestrian
Before	33	75	42	39	16
After	25	52	22	19	10

Accidents on Streets with Parking Restrictions
(One year before, and 6 months after)

Before	22	67	26	196	8
After	17	19	10	29	12

JAMES T. WHITE
City Traffic Engineer
Fort Wayne, Indiana

Toward Uniform Traffic Signs

PREPARATION of the post-war edition of the Manual on Uniform Traffic Control Devices began with a three-day meeting of the Joint Committee on Uniform Traffic Control Devices, in Washington, December 7. Deputy Commissioner H. E. Hilts of the U. S. Public Roads Administration is chairman of the Joint Committee, which represents the American Association of State Highway Officials, the Institute of Traffic Engineers, and the National Conference on Street and Highway Safety.

A subcommittee on traffic signal warrants, under Robert A. Mitchell, Philadelphia city traffic engineer, has completed a national survey of traffic signal experience to guide the establishment of criteria for future signal installation and operation. Other subcommittees are: Special Problems under Burton W. Marsh, AAA traffic engineering and safety director, and Harry Neal, Chief Engineer, Division of Traffic and Safety, Department of Highways, Columbus, Ohio, on legibility of various types of traffic signs.

Interest in modernization of the basic 10-year-old Manual is increased by the fact that post-war federal-aid highway legislation (S. 2105) passed by the United States Senate in September makes mandatory a state traffic code on signals, signs and markers covering all urban and rural routes receiving federal aid, and with the Public Roads Administration directed to approve only such state codes as promote safe and efficient traffic movement.

Traffic Counters Used in Lansing, Mich.

WE purchased two Streeter-Amet Traficounters model RC in 1942, two more in 1943 and one in 1944, using these counters to a great extent in determining the total volume of traffic at given points on the main arterial highways of Lansing. We have also used them in recording directional flows of traffic at intersections, thus determining the necessity for traffic signal installations or operations.

Our experience in checking manually the checks made by the machines indicate that these are correct within 5 percent, which does not seem excessive. There has been considerable difficulty in the cutting of the road tube, which has either been done by vandals or steel-tired equipment. This, however, is not a fault of the machine.

I have found it advisable, when these machines are in service, to check them at least twice a day to ascertain if they are working properly. Figures prove that the cost of obtaining the same information manually that we have gathered with the machines, would have been considerably more than the purchase price of the machines themselves. Our results with these Traficounters have been quite satisfactory and the five units which we now have are ample to take care of our present needs.

SIDNEY ANGER
City Traffic Engineer
Lansing, Mich.

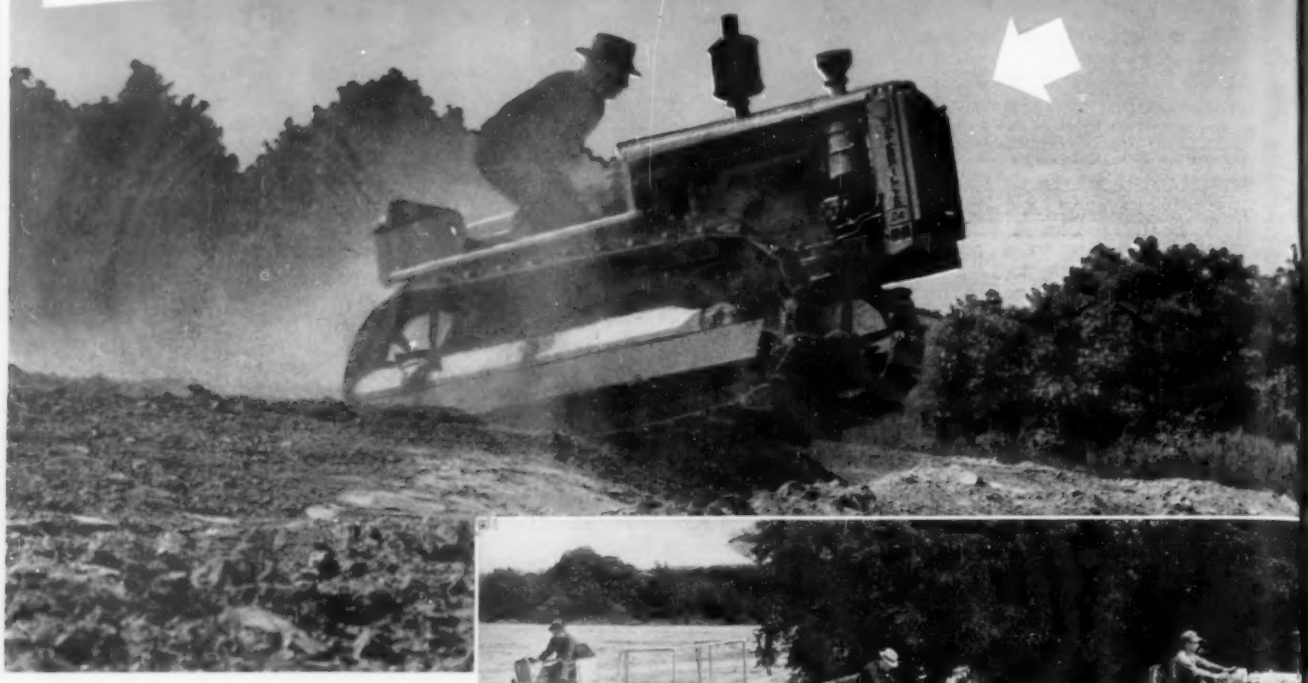
Parking Meter Collections In Long Beach, Calif.

Cart designed and built by Police Sergeant Houghton for receiving parking-meter collections and delivering them to the City Treasurer.

PARKING meters were installed in Long Beach, Calif., seven years ago. It costs each driver 5 cents to park his car alongside one of these meters and exactly 163,092 nickels poured out of the 1,037 Dual meters into the general fund of the city in March—the largest collection since the first installation in 1936. These 163,092 nickels add up to $8,154.60. Total nickels collected since the meters were installed amount to a half-million dollars.

Under the direction of Captain A. F. Slaight, in charge of the Traffic Division of the Long Beach Police Department, these meters are installed, maintained and serviced. Two officers on Harley-Davidson three-wheel motorcycles, equipped with one-way radio, check the overtime parking in the metered zones and Special Officer C. W. Lindsley makes the daily collections, unlocking the meter cash box and pouring the contents into a specially designed wheel cart. The cart was designed and built by Sgt. R. N. Houghton of the Long Beach police force. When all collections are made, the cart is taken to the office of the City Treasurer where its contents are counted and deposited.

PUTTING THE PROVE IN IMPROVEMENTS



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Every improvement that has ever gone into a "Caterpillar" Diesel product has first been subjected to the stiffest laboratory and proving-ground tests that could be devised. The net result is Product Dependability. With every manufacturing step controlled by one organization in one factory, there can be no possibility of compromise with quality.

Dependability is the outstanding characteristic of "Caterpillar" dealers, too. Today they are in a position to give your "Caterpillar" Diesel equipment the kind of inspection, adjustment, maintenance and repair it needs to work at peak efficiency from now until Victory is won. Call on *your* "Caterpillar" dealer regularly.

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Municipal Law Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS, Washington, D. C.
Charles S. Rhyne, *Executive Director*

Attorney—Office of City Counsel—Absence of Statutory Authorization to Create

Absence of any statute creating the office of city counsel held to make plaintiff's appointment one without legal authority and thus the Board of Commissioners did not infringe on any rights of plaintiff by purporting to abolish the office through adoption of an ordinance to that effect. *Brenner* v. *City of Bayonne*, 38 Atl. (2d) 569 (N. J. July 24, 1944).

Board of Education—Awarding of Contracts to Private Architects—Validity of

In petition to compel Board of Education to utilize the services of the employees of the Bureau of Construction in the preparation of plans for post-war work, held that a resolution to award to private architects contracts for the preparation of specifications of eight school buildings was valid. *Hardecker* v. *Board of Education of City of New York*, 55 N. E. (2d) 49 (N. Y. March 10, 1944).

Bonds—City in Default for Over 25 Years—Recovery Barred by Laches

In action to recover on certain special assessment bonds, held that action was barred by laches where city had been in default for more than 25 years and had made no effort to pay the bonds other than to submit a proposal to issue funding bonds which had failed to pass. *Whitaker & Co.* v. *City of Carbondale*, 55 Fed. Supp. 72 (U.S.D.C. Ill. March 6, 1944).

Bonds—Misappropriation of Funds by City—Statute of Limitations

In action to recover pro rata parts of street improvement bonds because of misappropriation of funds by city held that action was not against a property owner on a matured assessment nor on a liability created by statute which would be barred by the 5-year statute of limitations, but the 15-year limitation was applicable. *City of Corbin* v. *Becker*, 180 S. W. (2d) 419 (Ky. May 9, 1944).

Civil Service—Preference—Drafted Soldier Within Term "Volunteer" Army

Under a statute applicable to Sioux City giving preference in civil service appointments to honorably discharged soldiers of the regular or "volunteer" army, held that the quoted word meant soldiers other than the regular standing army and should be construed to include soldiers drafted into the army during World War I. *Case* v. *Olson*, 14 N. W. (2d) 717 (Iowa, June 6, 1944).

Elections—Compensation for Registrar of Voters

County court was held not liable for compensation of a registrar of voters who performed services under an Act relating solely to municipal elections. *Hill* v. *County Court of Kanawha County*, 30 S. E. (2d) 239 (W. Va. May 16, 1944).

Streets—Injury to Pedestrian on Cross-Walk-"Four-Inch Rule"

Refusal to charge so-called "four-inch rule" was error in action against city for injuries to pedestrian falling upon crosswalk in public street, under evidence where city would not be liable if jury accepted its contention. *Carson* v. *City of New York*, 48 N. Y. S. (2d) 265 (N. Y. Sup. Ct. App. Div. May 15, 1944).

Horse Meat—Prohibition Against Sale of—Validity

In proceedings for a temporary injunction to restrain the enforcement of a statute prohibiting the sale of horse flesh in the city, held that since the statute interfered with interstate commerce, had no reasonable relation to the protection of the public against fraud, and was discriminatory, it was invalid and the injunction should issue. *Hill Packing Co.* v. *City of New York*, 49 N. Y. Supp. (2c) 773 (N. Y. Sup. Ct. N. Y. Co., June 20, 1944).

Housing Authority—Owned by Private Corporation—Exemption from Taxation

Housing project operated by metropolitan housing authority but owned by a private corporation was not exempt from state taxation as a public purpose or as property used exclusively for "charitable purposes." *Youngstown Metropolitan Housing Authority* v. *Evatt*, 55 N. E. (2d) 122 (Ohio, April 36, 1944).

Salaries—Prevailing Wage—Vacations with Pay and Sick Leave

In action to compel defendant, as Mayor of City of Los Angeles, to pay plaintiff city employees an amount equal to prevailing salaries paid in private employment, held that council in fixing salaries under charter provision requiring "prevailing wage" could consider that inspectors were under civil service, and were entitled to vacations with pay and sick leave, and that similar private employment was temporary and fluctuating. *Allen* v. *Bowron*, 148 Pac. (2d) 673 (Cal. App. May 9, 1944).

Sidewalks—Gratings with One and One-Half Inch Holes

Plaintiff injured when her shoe caught in an iron grating in the sidewalk, held not entitled to damages where evidence showed that the holes in the grating were 1½-inch wide, that thousands of people safely used the sidewalk daily, and that the grating was flush with the concrete and not slippery. *McQuillan* v. *City of New Orleans*, 18 So. (2d) 218 (La. App. May 29, 1944).

Sidewalks—Injury to Pedestrian Tripping Over Cellar Door in

In personal injury action where buyer carrying blankets from seller's store tripped over the cellar doors in a public sidewalk which were open at time when entrance to cellar was not being used, negligence of seller and contributory negligence of buyer were questions for jury. *Friedlander* v. *Eagle Dry Goods Corporation*, 48 N. Y. S. (2d) 208 (N. Y. Sup. Ct. App. Div. May 5, 1944).

Water District—Power to Sell—Former Owner

Where receiver of water district had power to treat an indebtedness as an obligation which, when discharged, would cause the property, title to which had been acquired at assessment foreclosure, to revert to the former owner, purchaser from the district held not to be required to suffer loss because the procrastination of former owner in making payments led the purchaser to believe that the district had title, although title must be confirmed in the former owner. *Webb* v. *White*, 180 S. W. (2d) 816 (Ark. May 22, 1944). Reh. Den. June 26, 1944.

Taxation—Public Hospital

Where a hospital charged $50.00 a month for the services of each sister, who served without compensation, which was paid into a fund for the training of sisters, and on tax day legal title was in the vendor under an executory contract under which the parties agreed to adopt the property for use as a public hospital held that it was within the exemption, the vendee having the equitable title being the "owner" within the exempting statute. *Village of Hibbing* v. *Commissioner of Taxation*, 14 N. W. (2d) 925 (Minn. June 9, 1944).

Taxation—Summary Foreclosure—Redemption Period

In an action to foreclose tax liens a resolution by the city council, to take effect immediately, adopting the statute authorizing summary foreclosure, held valid under a charter provision that resolutions relating to administrative matters shall take effect at time indicated and the provision for a seven week's redemption period held not to be unreasonably short in view of the requirement that the taxes be in default for four years. *City of New Rochelle* v. *Echo Bay Waterfront Corp.*, 49 N. Y. Supp. (2d) 673 (N. Y. Sup. Ct. App. Div., July 3, 1944).

Taxation—Taxes Which Are Passed on to Retailer Are Included in Gross Receipts of Wholesaler

In an action for an accounting to ascertain the amount of license tax due, held that the amounts of stamp taxes levied on wholesale tobacco dealer by state statute and city ordinance and added to the prices of the goods sold to the retailers were parts of such prices and thus included in the wholesaler's "gross receipts" subject to a city tax imposed by another ordinance. *Merchants Cigar & Candy Company* v. *City of Birmingham*, 18 So. (2d) 137 (Ala. May 25, 1944).

Tax Liens—Appointment of Receiver to Enforce Payment of by Owner

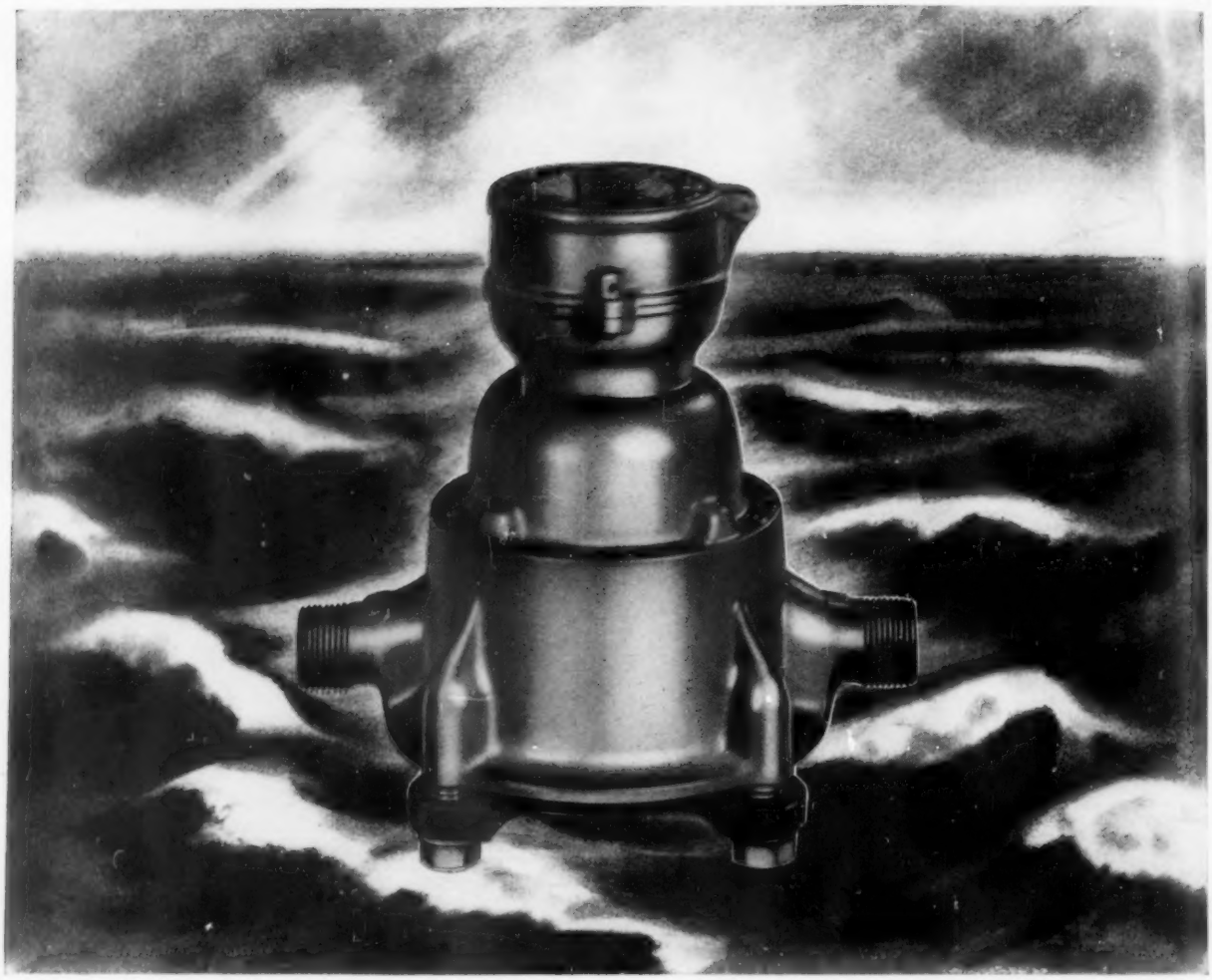
City was entitled to compel owner to pay the treasurer, as receiver, the reasonable rental value of the premises occupied by the owner where the city treasurer was appointed receiver of business property as a method of enforcing payment of transfer of tax liens held by city. *In re Section 12, Block 3714*, 48 N. Y. S. (2d) 154 (N. Y. Sup. Ct. Kings Co., April 22, 1944).

Veterans—Preference—Disability

Plaintiff, having been placed as No. 18 on the eligible list for the position of supervisor of automobiles in the policy department, held to be entitled to a preference on a showing that his claim as a disabled veteran, disabled to a degree of permanent partial 10 percent as of a year previous, had been found by the Veterans' Bureau. *Manko* v. *City of Buffalo*, 56 N. E. (2d) 261 (N. Y. June 14, 1944).

Statutes—Regulation of Liquor Traffic—Zoning Regulation—Consistency

In an action to enjoin the operation of a retail dispensing business contrary to a zoning ordinance passed under the zoning statute, where it was contended that the zoning statute was impliedly repealed by an act regulating and restraining liquor traffic, held that the two statutes were not inconsistent or repugnant since both were comprehensive and enforcible within the scope of the purpose for which they were adopted. *Borough of Kingston* v. *Kalanosky*, 38 Atl. (2d) 395.



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Zoning and Planning Notes

Prepared by FRANK B. WILLIAMS
Author of *The Law of City Planning and Zoning*

Spot Zoning

MASSACHUSETTS.—*Smith* v. *Board of Appeals of Salem*, Supreme Court, April 27, 1943, reported in 48 N. E. (2d), page 620.

This case turns upon the validity of an amendment of the zoning ordinance of the City of Salem. Before the amendment the ordinance had established seven classes of districts, known as single residence districts, general residence districts, apartment house districts, semi-residence districts, business districts, industrial districts, and unrestricted districts. A large area in the older residential section of the city had been placed in a general residence district. The amendment adds an eighth class of districts, known as funeral home districts, and puts into such a district a strip of land 67 feet in width. All the area surrounding the new district, except a small business strip, is in the general residence district. The only differences between a funeral home district and a general residence district is that funeral homes are permitted in the former and are excluded from the latter.

The court holds the amendment creating the district to be a plain case of what has come to be called "spot zoning" and invalid, saying:

> "It is plain that the Legislature in authorizing cities and towns to establish districts or zones for regulating the character of buildings and the use of buildings and lands . . . intended to provide for the creation and maintenance of reasonable uniformity within districts having in fact the same general characteristics. It was not intended that one or two building lots essentially similar to the rest of the neighborhood by which they were surrounded could be marked off into a separate district or zone and benefited by peculiar advantages or subjected to peculiar burdens not applicable to adjoining similar lands. . . . The amendment is not saved by the facts that a funeral home at its new location would be near a church and would be a convenience to a large number of persons. Almost any business anywhere would for one reason or another be convenient to numbers of persons. Nor is the amendment saved by the fact that the new 67-foot funeral home district is in contact at its northerly end with a business district. . . . We need not consider whether the amendment is invalid for the further reason that it creates a district or zone for a single occupation."

Non-Conforming Use

MICHIGAN.—*Palmer* v. *City of Detroit*, Supreme Court, October 11, 1943, reported in 11 N. W. (2d) page 199.

The plaintiff Palmer is the owner of property in the City of Detroit. In 1918 he constructed on his property a one-story masonry building designed as a public garage, which was so used for 18 years. From 1936 to 1942 the building was utilized for the manufacture of metal products, for a time being in continuous operation, with three shifts, for 24 hours of the day, on war work.

In 1941 the zoning ordinance of the city became effective. The manufacturing company required more space and applied for a permit to increase the size of the building. The application was denied, and the manufacturing concern was obliged to remove to larger quarters. Thereupon the building was rented to a carriage company, which agreed to limit the use of the building to transferring, sorting, and distributing merchandise incidental to carriage building, and not to employ the building after 7 p.m. except under extraordinary circumstances. The building is useful only for business purposes and it would be too costly to convert it to residential purposes. The plaintiff applied for a permit to have the prroperty used by the carriage company for the purposes stated above and the permit was denied.

The question at issue is whether the provision in the zoning ordinance with regard to non-conforming uses should be construed as forbidding any change of non-conforming use even to a higher one. The court holds that, if so construed, the provision would be unreasonable and void.

The ordinance should not be so interpreted as to totally prevent the usefulness of plaintiff's property and destroy his large investment in it.

One judge dissents, saying that he is "unable to read . . . into the ordinance" any authority that permits a change from one non-conforming use to another of the same or a higher classification.

Aesthetics—Junk Yard

VERMONT.—*Vermont Salvage Corporation* v. *Village of St. Johnsbury*, Supreme Court, December 5, 1944, reported in 34 Atl. (2d) page 188.

The village of St. Johnsbury passed an ordinance providing that licenses should only be given to junk dealers under certain restrictions, among which are that a junk yard shall be enclosed by a substantial fence at least 6 feet high and a motor vehicle junk yard shall not be located alongside or in plain view of a public traveled highway.

The provision for a substantial fence is valid and relates to the safety, morals, and welfare of the community. Such a fence would prevent children from entering the yard and being exposed to the danger of playing with the articles commonly found in such a place, or carrying them away. The provision that a motor vehicle junk yard shall not be located alongside or in plain view of a public traveled highway, however, is void. Its purpose is to remove from the view of those traveling along the highway this class of junk yard. It is well settled, however, that the use of property cannot be limited or restricted for an esthetic purpose under the police power. It may be true that the law on this subject is undergoing development and cannot be said to be conclusively settled as to the extent of the police power in this connection; but in the opinion of the Court, the rule thus stated is in accord with the majority of the cases on the subject, and the Court is not disposed to change it.

The provision that a motor vehicle junk yard located alongside or in plain view of a public traveled highway is a nuisance and may be abated as such is also invalid. The legislature may in proper circumstances declare a thing to be an abatable nuisance; but it cannot make that a nuisance which is not such in fact and thus destroy or prevent a lawful utilization of property; and the action of the legislature in making certain uses a nuisance is subject to review by the Court. Maintaining and operating a junk yard is a legitimate and useful business, and consequently not a nuisance per se. It is evident that a primary purpose of this section is esthetic; and the mere fact that a thing is unsightly furnishes no ground for a declaration by the legislature that it is a nuisance.

EDITOR'S NOTE.—In connection with this case the student will wish to re-read the important case of *Kebro, Inc.* v. *Merrick*, also a decision of the highest Court in the State of Vermont. The *Kebro* case is summarized, with extensive comments, in our Notes for February, March, and April, 1943, and is reported in full in its two stages in 30 Atlantic Reporter (2d) 120, 537.

The two cases are not technically in conflict. The *Kebro* case relates to billboards, on private land abutting on a public highway; and, as is said in our Notes on the case, holds that "a billboard erected on private land in order to be seen from the highway is not so much a use of the private land as it is a use of the highway; and regulation of billboards is thus not so much a regulation of the private property as it is a regulation of the use of the public thoroughfare. . . . Among his [the abutting property owner's] rights is that of visibility from the highway *for purposes connected with his own property, but for such purposes only*. This right is in the nature of an easement over the highway, but is limited to a benefit to his own property." But the usual commercial billboard seeks to use the highway for the benefit of business conducted at a distance from the land on which the billboard stands. The abutting owner, therefore, has no right to erect such a billboard and cannot grant such a right to a billboard company or anyone.

The present case relates to a use of land on and for the benefit of the owner of land abutting on the highway.

The only connection between the two cases is that in both cases esthetics are in fact involved. Nevertheless, we may regret that the Court in this case is not animated by the same progressive spirit as in its earlier decision.

National Planning Association's Business Committee Elects

Beardsley Ruml, of New York, was re-elected chairman of the N.P.A. Business Committee on November 17; P. B. Stull, of Wilmington, Del., was elected vice-chairman; and Charles E. Wilson, president of the General Electric Co., was elected to membership on the committee.

Let's all be afraid of the dark . . .

and DO something about it!

NOTHING has happened to her . . . yet. But it might. Something did happen to a girl she knows . . . ! So now she's afraid . . . afraid of the dark on her own street.

And today's darkness is something to fear . . . even for grownups. Speeding traffic . . . purse-snatchers . . . thugs . . . thieves . . . juvenile gangs . . . all take their heaviest toll where the light is lowest.

Poorly lighted streets are a standing invitation to trouble in any city. The time has come to attack the problem—now, before public indignation boils over. Take steps at once to make sure your street lighting system is adequate to the postwar needs of your community. Your electric utility people will be glad to cooperate. Ask them to help you plan better light for better living!

If you are puzzled about how and where to start, we will be glad to help by showing you how other municipal officials are solving problems similar to yours. For a good beginning, write for your free copy of "Postwar Traffic Plans for the City of Buffalo". The Street and Traffic Safety Lighting Bureau, 155 East 44th Street, New York, New York.

GOOD STREET LIGHTING—THE SIGN OF A GOOD PLACE TO LIVE

Wartime Water Works Remodeling for Permanence

(Continued from page 63)

some 43 tons of special fitting. The total length of the new arterial feeder main is approximately 20,000 lineal feet. The pipe is Class 150, cast iron bell and spigot pattern, with lead caulked joints, except where crossing under railroads and through the Jasper Street subway. In these locations the mechanical joint pattern is used. Eighteen gate valves, provided with spur and bevel gear operation and with by-passes, were incorporated in the arterial feeder main, and cross connections were made to existing distribution mains at selected locations.

To finance the present construction a bond issue was set up on the basis of an estimated cost of $530,000, of which amount the Federal Works Agency assumed 40 percent and the city 60 percent.

The 1944 improvements have been made principally to serve the immediate needs of the city and its industries in the furtherance of the Nation war Emergency, but plans are being studied for post-war additions to give the city better water service.

Among the first improvements anticipated are the installation of recarbonation equipment, and the replacement of sand gravel in the filters. Other items to be anticipated include the relocating of the 20-inch wash water main for the filters; the elimination of an existing common wall between one clearwell and the settling basin; protection work to prevent scouring below the lake spillway; enlargement of the raw water pumping station and the installing of additional electric driven raw water pumps; high lift pump; extensions to the lime house; intake and screen improvements and a duplicate 36-inch raw water line; distribution system reinforcing mains and arterial feeder main for the west side; elevated storage; boiler room extensions and the rehabilitation of the present 500-hp boilers to provide increased ratings; additional meters, gauges, and appurtenances.

It is estimated that this program will amount to approximately $600,000. This, in addition to other departmental programs, will insure a post-war employment reservoir.

Personnel

The contracts for the construction of the water works improvement were awarded to Roy W. Christy, of Decatur, for the filter plant; and to the Santucci Construction Co., Skokie, Ill., on the arterial feeder main.

Warren & Van Praag, Inc., consulting engineers, Decatur, Ill., made the preliminary studies, prepared plans and specifications and are furnishing engineering supervision and field inspection. They were represented on the job by W. S. Burlingame, principal engineer; with Fred S. Morse and William A. Heffernan as resident engineers.

Mayor James A. Hedrick and Commissioner of Public Property Bushrod Sattley were the city's representatives.

A. M. Schott was the FWA resident engineer on the project under L. A. Gillett, Head of Region 4.

National Institute of City Clerks

Announcement is made in the November 15 issue of *The United States Municipal News* that an Organizing Committee of City Clerks of 30 representative cities located in various sections of the country has formed a National Institute of City Clerks. Among the functions of the Institute will be the effective interchange of information and data on problems confronting the office of city clerk in the larger municipalities. State organizations of city clerks in several state have proved to be very helpful and valuable and there is every reason to believe that the National Institute will make a distinct contribution toward improved municipal administration.

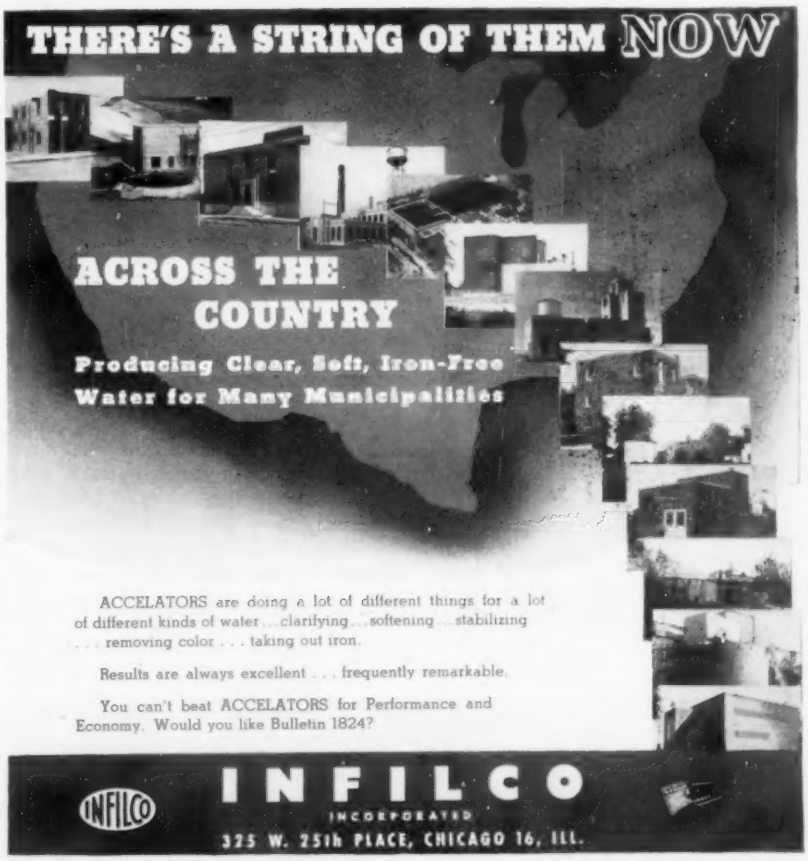
San Diego's New Program of Civil Service Training

A CIVIL service training program, voted unanimously by the City Council of San Diego, Calif., is now being worked out in conjunction with the city schools. The program will involve a training schedule designed not only for those seeking to enter city service, but also for those already employed by the city seeking to perfect themselves and others working for promotions.

Participating in a conference outlining the scope of the training program were Willis R. McCabe, city personnel director, and Dr. Will C. Crawford, city schools superintendent.

Dr. Crawford said that when the program goes into effect it will give San Diego the most comprehensive arrangement for training public servants to be found anywhere in the nation. Details of the plan, which Mr. McCabe said had been requested by employees, were outlined by J. Graham Sullivan, director of vocational training for the city schools.

The schools will supply a man to direct the program for the first year. In the future it may be deemed advisable to have the post filled by the city.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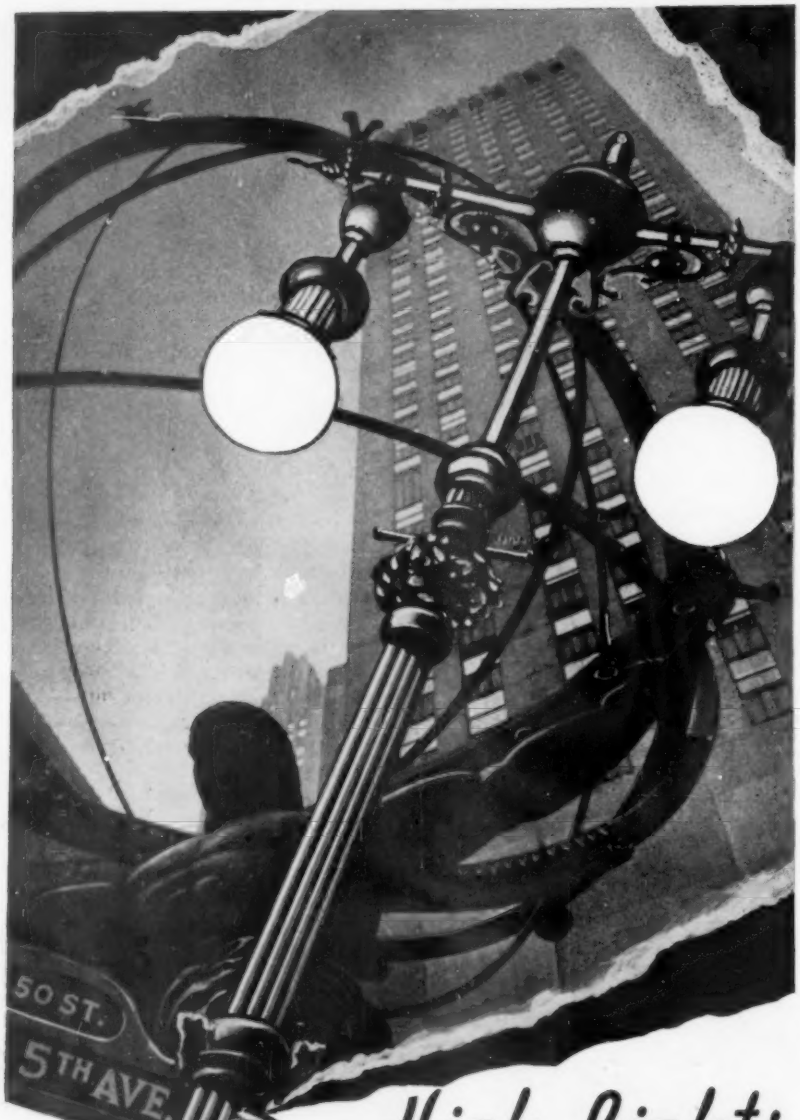

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Conventions—When and Where

Jan. 5-6—**Boston, Mass.**
MASSACHUSETTS SELECTMEN ASSOCIATION. Annual Meeting. (Gardner Auditorium—State House.) Exec. Sec., Axel E. Zetterman, Ashland, Mass.

Jan. 7—**Cheyenne, Wyo.**
LEAGUE OF WYOMING MUNICIPALITIES. Annual Meeting. (Hotel Plains.) Exec. Sec., G. R. McConnell, Laramie, Wyo.

Jan. 16-19—**Chicago, Ill.**
AMERICAN ROAD BUILDERS' ASSOCIATION. Annual Meeting. (Hotel Stevens.) Charles M. Upham, 952 International Bldg., Washington, D. C.

Jan. 17—**New York, N. Y.**
AMERICAN WATER WORKS ASSOCIATION—NEW YORK SECTION. Mid-Winter Meeting. (Hotel Pennsylvania.) Sec., R. K. Blanchard, 50 W. 50th St., New York 20, N. Y.

Jan. 17-19—**New York, N. Y.**
AMERICAN SOCIETY OF CIVIL ENGINEERS. Annual Meeting. (Hotel Commodore.) Sec., George T. Seabury, 33 W. 39th St., New York 18, N. Y.

*Jan. 18—**Newark, N. J.**
NEW JERSEY HEALTH AND SANITARY ASSOCIATION. Annual Meeting. (Essex House.) Sec., Dr. Edward Guion, Drawer D, Northfield, N. J.

Jan. 19—**New York, N. Y.**
NEW YORK STATE SEWAGE WORKS ASSOCIATION. Annual Meeting. (Hotel Pennsylvania.) Sec.-Treas., A. S. Bedell, c/o State Dept. of Health, Albany, N. Y.

Jan. 22-26—**New York, N. Y.**
AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS. Winter Technical Meeting. (Engineering Societies Building.) Sec., H. H. Henline, 33 West 39th St., New York 18, N. Y.

Jan. 29-31—**Lafayette, Ind.**
PURDUE ROAD SCHOOL. (Purdue Memorial Union.) R. B. Wiley, School of Civil Engineering, Purdue University, Lafayette, Ind.

Feb. 5-7—**College Station, Texas**
TEXAS WATER WORKS & SEWERAGE SHORT SCHOOL. Annual Short School. (Texas A. & M. College.) Sec., V. M. Ehler, Austin, Texas.

Feb. 19-20—**New York, N. Y.**
NATIONAL HOUSING CONFERENCE. Annual Meeting. (Hotel New Yorker.) Exec. Vice-Pres., Lee F. Johnson, 1015 Fifteenth St., N. W., Washington 5, D. C.

*Feb. 21-22—**Birmingham, Ala.**
SOUTHEASTERN ASSOCIATION OF STATE HIGHWAY OFFICIALS. Annual Convention. (Hotel Thomas Jefferson.) Sec.-Treas., M. L. O'Neale, 1340 Wilson St., Charleston, W. Va.

Feb. 27-Mar. 1—**Grand Rapids, Mich.**
CONFERENCE ON HIGHWAY ENGINEERING. Annual Highway Conference. (Hotel Pantlind.) Sec., R. L. Morrison, University of Michigan, Ann Arbor, Mich.

Feb. 28-Mar. 2—**New York, N. Y.**
ASSOCIATION OF HIGHWAY OFFICIALS OF NORTH ATLANTIC STATES. Annual Conference. (Hotel Pennsylvania.) Sec.-Treas., A. Lee Grover, c/o State Highway Dept., Trenton, N. J.

*Mar. 9-10—**Minneapolis, Minn.**
AMERICAN WATER WORKS ASSOCIATION—MINNESOTA SECTION. Annual Conference. (Hotel Nicollet.) Sec.-Treas., R. M. Finch, Wallace & Tiernan Co., Inc., 416 Flour Exchange, Minneapolis, Minn.

*Mar. 15-16—**Lafayette, Ind.**
AMERICAN WATER WORKS ASSOCIATION—INDIANA SECTION. Annual Meeting. (Purdue University.) Sec., C. H. Beckert, 402 State Library Bldg., Indianapolis, Ind.

Mar. 21-23—**Toronto, Ont.**
AMERICAN WATER WORKS ASSOCIATION—CANADIAN SECTION. Annual Convention. (Royal York Hotel.) Sec., Dr. A. E. Berry, c/o Ontario Department of Health, Parliament Bldg., Toronto, Ont., Canada.

*Mar. 22-23—**Trenton, N. J.**
NEW JERSEY SEWAGE WORKS ASSOCIATION. Annual Meeting. (Hotel Stacy-Trent.) Treas., Edward P. Molitor, New Jersey Sewage Works Association, Chatham, N. J.

*Apr. 19-20—**Elmira, N. Y.**
AMERICAN WATER WORKS ASSOCIATION—NEW YORK SECTION. Spring Meeting. (Hotel Mark Twain.) Sec.-Treas., R. K. Blanchard, 50 W. 50th St., New York 20, N. Y.

*May 7-9—**Chicago, Ill.**
NATIONAL INSTITUTE OF GOVERNMENTAL PURCHASING, INC. Annual Conference and Products Exhibit. (Hotel Stevens.) Exec. Dir., Albert H. Hall, 730 Jackson Pl., N. W., Washington 6, D. C.

* First appearance on this page.

Officers Elected at Recent Conventions

American Municipal Association

Pres., WILSON W. WYATT, Mayor, Louisville, Kentucky

Vice-Pres., R. E. RILEY, Mayor, Portland, Oregon

Trustees, J. N. CALDWELL, Municipal Association of South Carolina, Columbia, S. C.
L. P. COOKINGHAM, City Manager, Kansas City, Mo.
WOODALL RODGERS, Mayor, Dallas, Texas
JAMES J. SMITH, New Jersey State League of Municipalities, Trenton, N. J.

American Public Works Association

Pres., COL. STUART M. WEAVER, Chief, Repairs and Utilities Branch, Military Construction Division, Washington, D. C.

Vice-Pres., CAPT. SAMUEL S. BAXTER, Corps of Engineers, Washington, D. C., for the Eastern Area
J. W. MORGAN, Commissioner of Public Improvements, Birmingham, Ala., Southern Area
LLOYD M. JOHNSON, Commissioner of Streets and Electricity, Chicago, Ill., for Central Area
WALTER N. FRICKSTAD, City Engineer of Oakland, Calif., for the Western Area

Treas., ALBERT P. LEARNED, Consulting Engineer, Kansas City, Mo.

Recent City Manager Appointments

GEORGE A. JOHNSTON, city manager of Cadillac, Mich., for the past 26 years and in the city service for 38 years, is retiring this month. GERRITT P. ROOKS, manager of Zeeland, Mich., has been appointed to succeed him on December 1.

ROBERT CRAIG MONTGOMERY, former city comptroller, was appointed city manager of Yonkers, N. Y., on November 7, to succeed W. A. Walsh.

JAMES M. TITUS, former director of public works, has been appointed city manager of Daytona Beach, Fla., to succeed Charles S. Thrasher.

CLARENCE E. RIDLEY
Director, International City Managers' Association

Municipal Flight Strips

(*Concluded from page 67*)

to control the area adjacent to a highway as the highway itself. City building by-laws have recognized this principle for many years, but it is only quite recently that it has been applied in rural areas. If a landing field is planned for extension at a later date, the adjoining land must be placed under lease of municipal by-law control to prevent the erection of buildings which would interfere with aircraft operation or future runway extension.

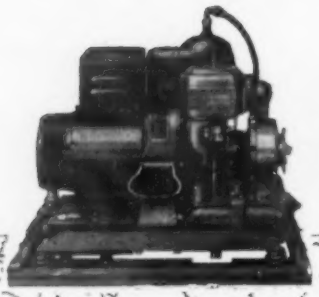
The machinery for maintaining the landing strips is available and an arrangement could be worked out between the municipality, the province and the aircraft owners whereby such machinery can be used.

—From a paper before the Conference of the Canadian Good Roads Association and published in the *Municipal Review of Canada* for November 1944.

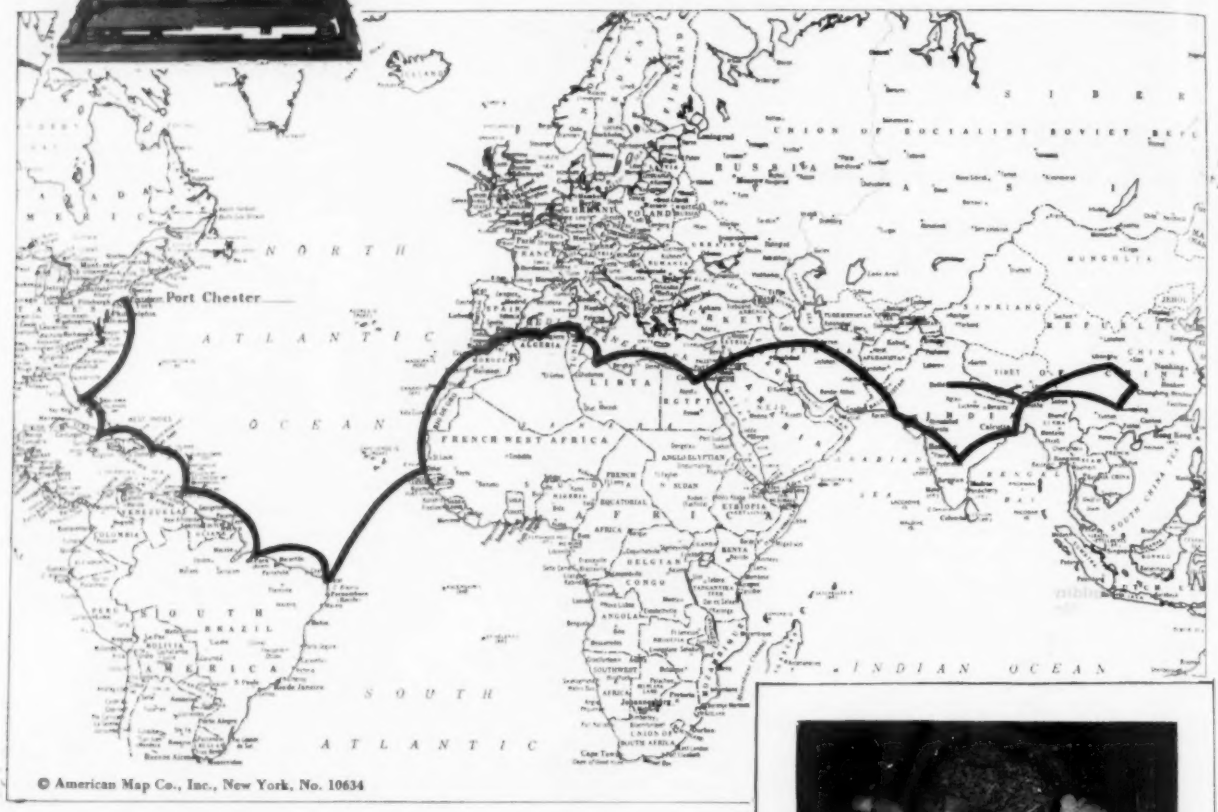
The Municipal Bond Market

Some sales of new issues as reported in November issues of *The Bond Buyer*:

Amount	Borrower and Purpose	Rate (%)	Term (Years)	Basis (%)
$250,000	St. Louis, Mo., School District Building	3	2.25 Avg.	.42
100,000	East Orange, N. J., School Series NN	4.5	2.16 Avg.	.62
200,000	Fresno, Calif., Water Works of 1931	4.5	7 Avg.	.83
500,000	Memphis, Tenn., School	1.20	1-20 Ser.	1.17
250,000	Joplin, Mo., Refunding, Municipal Airport	1.25	13.5 Avg.	1.24
225,000	Canton, O., City School District	5	9.33	1.29
100,000	Petersburg, Va., Permanent Public Improvement	4.5	8	1.32
170,000	Covington, Ky., Water Works Revenue	3.75	5.33 Avg.	1.34
186,000	Kearney, N. J., Water Improvement	1.40	8.25 Avg.	1.377
500,000	Detroit, Mich., Refunding, Series F	2.75	6.66 Avg.	1.54
315,000	Rock Island, Ill., Sewerage Revenue	3.75	12.33 Avg.	2.15
256,000	Wickliffe, O., Refunding (Non-Callable)	2.5	8.83 Avg.	2.32
12,000,000	St. Petersburg, Fla., Refunding, Issue of 1944	2.75	20.83 Avg.	2.86



HERE'S A TRIP
that will do you a Lot of Good



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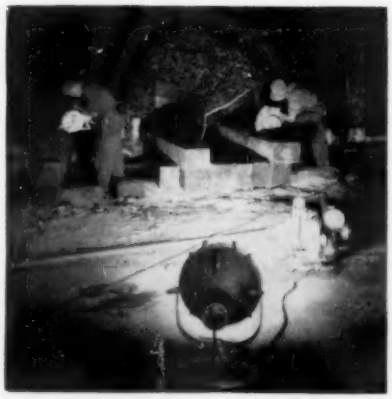
Yes, trips like these will do you a lot of good. For they have piled up a wealth of priceless experience that will enable us to give you better generators, better pumps and better blowers, than you ever had before.



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Municipal and Civic Publications

Survey of Urban Redevelopment

A SUMMARY OF STUDIES AND PROPOSALS IN THE U. S. A. ON ASSEMBLY OF LAND OR URBAN DEVELOPMENT AND REDEVELOPM NT. *National Housing Agency, Office of the Administrator, Urban Developme t Division, Washington, D. C.* 1944. *Mimeo.* 86 *pp.*

Lists the early proposals for land assembly—the Delano, the Holden, and others, and the U. S. Housing Act of 1937. The story is brought up to date and case studies of various cities are given, along with legislation and legislative proposals. Proposed formulae of Ira Robbins, Alfred Rheinstein, the National Resources Planning Board, and others, are also included. This is no evaluation or critique—merely an effort to state obejctively the contents and results of studies and proposals. Appendix A contains a digest of what has been done by the Federal government for urban redevelopment in the way of legislation, aid to local planning, and action in the District of Columbia. The provisions of the ten state urban redevelopment corporation laws are analyzed in Appendix B.

City Finances

CITY FINANCES: 1943. *Prepared under the supervision of E. R. Gray, Chief, Governments Division, Bureau of the Census, Washington 25, D. C.*

This is the annual compendium of "City Finances for 1943," made up of three volumes. Volume 1 includes a series of reports on City Finances—a separate report for each of the 37 cities having populations over 250,000; seven have already appeared, and publication of the remaining 30 is in progress. Volume 2 opened with Topical Report No. 1, "City Debt on June 30, 1943," and other reports in the series are contemplated. A preliminary edition of Volume 3, "A Statistical Compendium of 397 cities having populations over 25,000," is scheduled for early publication.

Los Angeles Metropolitan Area Transit Study

TRANSIT STUDY 1944: LOS ANGELES METROPOLITAN AREA.—*By the Central Business District Association, 324 H. W. Hellman Bldg., Los Angeles 13, Calif.* 39 *pp.*

An illustrated report containing recommendations for the coordination of the existing public transit system with the system of parkways in the Los Angeles Metropolitan Area. In this publication, the principal results of the Association's work during the first half of the current year, and a substantial amount of the work of the staff each year since 1940, have been summarized, to assist governmental agencies and authorities drafting the constructive plans.

Adjusting the Salaries of Municipal Employees

COST-OF-LIVING SALARY ADJUSTMENT PLANS FOR MUNICIPAL EMPLOYEES. (*Including model charter provisions*)—*Detroit Bureau of Governmental Research, 1050 Buhl Bldg., Detroit 26, Mich. July* 1944. 42 *pp.* 50c.

This Detroit Bureau seeks a plan to maintain salaries at a level which will insure constant purchasing power for its employees. Discusses several types of plans in operation in different cities throughout the country, and the Canadian Dominion Plan. The various plans are analyzed and compared, with emphasis on the following points: base salary, cost-of-living index, limitations on the application of the cost-of-living adjustment, number of adjustments per year, maximum—minimum adjustment (both as to percentage and amount involved), and the permanency of the plan. In conclusion, the Bureau proposes a plan of its own which, in its opinion, considers the pocketbook of the taxpayer as well as that of the municipal employee.

Proposed Arterial Plan for Baltimore

BALTIMORE ARTERIAL REPORT.—*By Robert Moses, Director, and a group of engineers, attorneys and special consultants. Office of the Mayor, City of Baltimore, Md. October* 1944. 39 *pp. Maps and charts.*

An arterial plan for Baltimore presented to the Mayor and the City Council, including a summary by Robert Moses, and a detailed illustrated report by the consultants, featuring an expressway through the heart of the city. This is believed to be a practical proposal which would enlist federal and state funds, supplemented by local financing. Appendix contains a recommended legislative act to facilitate the program.

(See front cover and page 59 of this issue.)

Post-War Planning Manual

MANUAL OF POST-WAR PLANNING FOR CITIES AND TOWNS IN RHODE ISLAND.—*Compiled by the Committee for the Advancement of Local Planning of the State Planning Board, Providence 2, R. I.* 1944. 40 *pp.*

This Manual is intended as a guide for Central Planning Authorities of the cities and towns of Rhode Island in the study of post-war problems. It indicates a method of procedure including the organization of committees and sub-committees in these categories: Public Works, Public Welfare, Zoning and Land Use, Housing, Private Enterprise, Employment, and Finance and Legislation.

Rochester Tax Problem and Real Property

ROCHESTER—A STUDY IN CIVIC VALUES. *The University of Rochester, Rochester 7, N. Y. October* 1944. 8 *tables.* 53 *pp.*

Alan Valentine, President of the University of Rochester, in a preface to the publication, points out that this study is intended to present to the citizens of Rochester facts and conclusions on its tax problem and real property, and that only when a larger number of Rochester men and women understand the situation their city faces, and actively assist city officers and civic groups to move toward wise solutions, can Rochester advance successfully into the future.

As a challenge to the City of Rochester, the booklet sets out to examine the value of Rochester's real property. Faced with such problems as an inadequate budget, insufficient funds for pay-as-you-go capital improvements, dependency of Monroe County in large measure on Rochester for its economic life, decentralization laid to modern transportation increasingly draining Rochester's population out into the country—taking all these factors into consideration—Rochester is urged to understand its problem and plot its future course by practical planning. The tax base of Rochester, the effect of the city tax system on city development are discussed, as well as some suggestions for a cure by broadening the tax base, debt reduction, redistribution of city and county taxes, state and federal aid, redevelopment of areas through private enterprise, improvements to the zoning ordinance, and emphasis on the importance of proper city planning, among other remedies.

Readjusting the Veteran

TAX POLICY: DOING RIGHT BY THE SERVICEMAN. *Tax Institute, Inc., 257 Fourth Ave., New York 10, N. Y.* 8 *pp.* 25c.

Covers the more important provisions of national legislation relating to the serviceman. The pamphlet sketches briefly the steps which have been, and will be, taken to restore the veteran to civilian life with as little physical and economic detriment as possible, touching on educational and medical aid, vocational rehabilitation and training, financial aids and employment opportunities.

The Future of Housing

HOUSES OF TOMORROW.—*By Thomas Carskadon. Public Affairs Committee, Inc., 30 Rockefeller Plaza, New York 20, N. Y.* 1944 32 *pp.* 10c.

A digest of "American Housing: Problems and Prospects" written by Miles L. Colean and the Committee on Housing of the Twentieth Century Fund. This brief pamphlet breaks down the problem and presents the various recommendations set forth in the large volume upon which it is based. The greatest need and demand for homes comes from the middle and lower income groups, and private industry will produce the bulk of these houses. However, writes Mr. Carskadon, public housing will have to fill the gap caused by the inability of private enterprise to provide adequate housing at prices low enough to reach the lowest income groups of the population. The pamphlet surveys the field of public housing and, in addition, covers such matters as the amount of building that will have to be done after the war, the number of jobs that will be created, and the changes that must be made in the housebuilding industry, in trade union practices, and in selling and financing methods if housing needs are to be met.

America Faces the Air Age

CIVIL AVIATION AND PEACE.—*By J. Parker Van Zandt. The Brookings Institution, Washington 6, D. C. October* 1944. 157 *pp.* $1.00

Volume II of a series under the general title, "America Faces the Air Age." This publication analyzes the basic conflict over post-war civil aviation in order to discover how best it may be resolved. There are two schools of thought about the post-war role of civil aviation. One group fears that civil aviation is itself a menace to peace unless brought under effective international control. Another group regards civil aviation not as a threat but as the key to a new world. To aid in resolving this conflict the author examines the principal divisions of civil aviation and the relation of each to air power. International operations are found to be only a minor phase of the civil aviation industry and their military importance grossly exaggerated. In place of "quotas" and restrictions, the author outlines a program of maximum use which he believes would do much, if generally adopted, to stabilize international conditions and assures a more prosperous and peaceful world.

(See review of *"The Geography of World Air Transport,"* THE AMERICAN CITY, August 1944, page 111.)

Cooperation Must Be Regional

THE BAY REGION TAKES STOCK.—*Pamphlet No. 3. California State Reconstruction and Reemployment Commission. San Francisco, Calif.* 1944. *Maps and charts.* 20 *pp.*

A report of a meeting of 40 Bay Area leaders who frankly faced the problem of increasing population and declining industrial activity in the San Francisco area as shown by an analysis of present conditions and trends from 1920 to 1944. The progress, problems, and post-war needs of over 2 million people in the San Francisco Bay Region were outlined and a unanimous agreement was reached that the solution was to be sought in regional cooperation. To implement the will of the group, a San Francisco Bay Region Council was formed, charged with analyzing the assets and needs of the region and of recommending plans to induce industry to take advantage of these assets and to provide an ever rising standard of living which would make the region highly desirable for industrial people. It proposed to make planning realistic by pinning "responsibility for action into the law." In the opinion of the meeting, as reported in this pamphlet, "This is a kick-off for good times ahead."

★ ★ ★ ★ ★ ★ ★ ★ ★

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Health Data 1943

HEALTH PRACTICE INDICES, 1943.—*A Collection of Charts Showing the Range of Accomplishments in Various Fields of Community Health Service. Prepared by the Subcommittee on Manual of Practice and Appraisal of Local Health Work for the Committee on Administrative Practice of the American Public Health Association, 1790 Broadway, New York 19, N. Y.* 1944. 116 *pp.*

This booklet contains 78 charts showing the range of health practices in the year 1943 among 178 communities spread over 32 states and 4 provinces of Canada. The data are taken from schedules submitted for the year 1943 by local health officers to the American Public Health Association for evaluation. These charts will be found useful to local and state health officers, to other public health personnel, and to citizens generally in comparing local experience with a large sampling of practices over the United States and Canada.

The Returning War Veteran in Industry

THE EMPLOYMENT OF THE HANDICAPPED VETERAN.—*Prepared by the Policyholders Service Bureau, Metropolitan Life Insurance Company, One Madison Ave., New York 10, N. Y.* 1944. 56 *pp.*

This booklet, tackling the problem of absorbing the disabled veteran in business and industry, is designed primarily to aid employers in planning jobs for disabled veterans. It covers the determination of policies, procedures, and organization responsible for carrying out these policies, analysis from the standpoint of the physical requirements of the job, adaptation of jobs to the handicapped, determination of the veteran's physical and mental abilities and limitations, introduction of the handicapped to the job, education of the foreman in the treatment of the handicapped, training of the handicapped, their supervision, their medical check-up, their adjustment to plant conditions, and transfer to other jobs. The report is based on plans for returning disabled servicemen of 54 companies, and on the experience of these companies in the employment of both the civilian and veteran handicapped. Community and industry cooperative plans are described, and the plans of those companies which are cooperating with the armed forces in actual rehabilitation of servicemen. This is the first of two studies dealing with the employment of the war veteran. The second report, "Reemployment of War Veterans," will cover the general problem of reemploying returning veterans.

From War to Peace

THE ECONOMICS OF DEMOBILIZATION.—*By E. Jay Howenstine, Jr. The American Council on Public Affairs, 2153 Florida Ave., Washington 8, D. C.* 1944. 336 *pp. Cloth,* $3.75. *Paper,* $3.25.

In an introduction by Dr. Alvin H. Hansen, Professor of Economics, Harvard University, Dr. Hansen states that Dr. Howenstine has presented a scholarly and balanced account of the record, the problems, the controversies, the policies, and, finally, the outcome emerging from World War I. The story of the conditions then confronting us, the actions taken (and frequently the failure to take action) cannot fail to be a useful aid to post-war policy now. Of particular significance is the study of the end of wartime controls, post-war inflation, the battle against the high cost of living, the cancellation of contracts, the labor demobilization policies, the public works program, the price stabilization movement and its failure, the government's surpluses and prices, Treasury and Federal Reserve policies and the financing of European reconstruction.

Disposition of Surplus Property

SURPLUS WAR PROPERTY.—*The American Councily of Public Affairs, 2153 Florida Ave., Washington 8, D. C.* 1944. 24 *pp.*

Disposal of war property has been going on for some time now, but, this pamphlet maintains, with the cessation of hostilities the problem will assume gigantic proportions. In it are set forth basic facts and procedures concerning the extent and disposal of surplus war property, compiled by the Office of War Information on the basis of information supplied by the various war departments, boards, corporations, and commissions concerned with the problem. The procedure of disposition involves designation of disposal agencies, reporting surpluses, responsibilities of owning and disposal agencies, inter-agency cooperation, sales policies, accounting, and redistribution of surplus property within the government.

The School and the Community

EDUCATIONAL PLANNING.—*The School Executive, Special Supplement, November* 1944. *470 Fourth Ave., New York 16, N. Y. Annual subscription,* $3. *Single copy,* 25c.

Accepting the community as one of the basic units of American life, and education as a continuing process, *The School Executive* devoted a section of its November issue to the planning of the community program. Among topics discussed in this issue by educational authorities are: Principles of Community Organization, Place of the School in Community Life, Organizing a Community Program, The School as the Community's Meeting Place, and The Community as the Basis for the Instructional Program. The need for greater utilization of school facilities by the community and for the cooperation of the school in defining and solving community problems is emphasized.

The History and Life of a Stream

STREAM SANITATION.—*By Earle B. Phelps. With a chapter on Stream Microbiology by James B. Lackey. John Wiley and Sons, Inc., New York, N. Y.* 1944. 276 *pp.* $3.25.

A scientific study of stream sanitation with reference to the stream in its various aspects and conditions induced by the environment of mountain and plain, by the demands of industrial, residential, and recreational locales, and by the utilization of water in navigation, and for public supply from reservoirs and lakes. The study considers the biology of growth and decay, oxidation and digestion from aerobic decomposition, the oxygen balance, bacterial pollution and public health, and the numbers and type of microbes, useful and detrimental, present in water in various localities and under various conditions, with a report on factors favoring or discouraging their multiplication.

Civic Organization

NATIONAL MUNICIPAL REVIEW: FIFTIETH ANNIVERSARY ISSUE.—*National Municipal League, 299 Broadway, New York 7, N. Y. November* 1944. 70 *pp.* 50c.

A gala number containing articles on the League's past and its future, by leaders in the civic movement—John G. Winant, Charles A. Beard, Clinton Rogers Woodruff, Richard S. Childs, Frank M. Stewart, Harold W. Dodds, and Murray Seasongood. The usual section, News in Review, appears in this issue with contributions from H. M. Olmstead, Elsie S. Parker, George H. Hallett, Jr., Elwyn A. Mauck, Wade S. Smith, and Edward W. Weidner. In the introduction to this Anniversary Number, Ambassador Winant, President of the League, expresses gratification for the role that the League has played in the fight for better city government. Other contributors survey the future; the rising tide of civic interest — and ensuing progress — is marked and lauded.

Municipal Regulation of Vending Machines

MECHANICAL AMUSEMENT DEVICES—JUKE BOXES—CIGARETTE VENDING MACHINES. — *Report No.* 109. *By Charles S. Rhyne.* 28 *pp. National Institute of Municipal Law Officers, 730 Jackson Place, N. W., Washington 6, D. C.* 1944. *Each report* $2. *Distributed free to members of the Institute.*

A study of municipal regulation of cigarette vending machines, juke boxes, and mechanical amusement devices, based on information assembled by the Research Staff of the Institute with the cooperation of over 300 city attorneys throughout the country. Various court decisions are reviewed and tables showing provisions of 38 city ordinances concerning these devices are given, together with a model ordinance for licensing and regulating the use of these machines and annotations to this ordinance.

Municipalities and the Bonus

MUNICIPALITIES AND THE SOLDIER BONUS.—*Report No.* 108. *By Herzel H. E. Plaine. National Institute of Municipal Law Officers, 730 Jackson Place, N. W., Washington 6, D. C.* 1944. 57 *pp.* $2. *Distributed free to Institute members.*

This report embodies results of a survey of all reported court decisions on the powers of municipalities to appropriate funds for a variety of aids to war veterans, in an effort to determine the legality of the veterans' or soldiers' and sailors' cash bonus and the probable area of municipal action. Of the role of the municipalities, the author says it is generally accepted that a state may honor its citizens who serve in the military forces of the United States, by the payment of a cash bonus after the services have been rendered, but the municipalities enjoy no inherent powers with respect to the payment of military bonuses, and none is implied from any general grant of municipal powers by the legislature. Excerpts from responses sent by 26 different cities and towns on the question of payment of bonuses closes this study.

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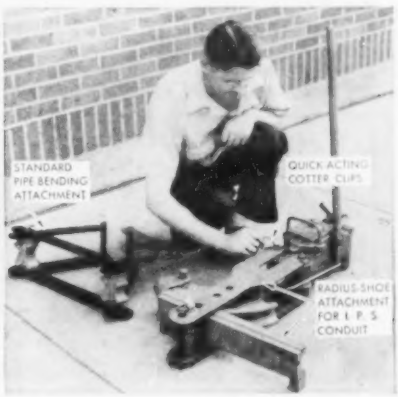

3 Operating lever is forced down to its lowest position, releasing pressure. Handle is then transferred to the quick-positioning lever for withdrawal of ram. Pipe can be withdrawn entirely or moved for second bend. Then the process in steps 1, 2 and 3 is repeated.

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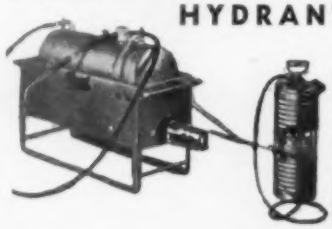

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Aid in Governmental Purchasing Efficiency

AT YOUR SERVICE.—*The National Institute of Governmental Purchasing, 730 Jackson Place, N. W., Washington 6, D. C. 24 pp. Free on request.*

Summarizes the purposes and services of this non-profit educational and technical organization of the governmental buying agencies of the United States and Canada. The six types of information furnished to its members, its research service, the annual and special conferences, annual awards for merit and proficiency in governmental purchasing, and membership are described and lists given of members of the Board of Directors and officers. The By-Laws and the Code of Ethics of the Institute are included, the latter basing governmental purchasing on principles of public service and not on personal considerations or self interest. The organization, as the brochure clearly denotes, is dedicated to the establishment of more efficient and economical governmental purchasing through exchange of information, the striving for simplified standards and specifications, uniform purchasing laws and procedures, and the furthering of a high sense of public responsibility among its members. Cost of membership is based on population served and is open to all purchasing agents of tax-supported and publicly owned organizations.

Planners Resume Publication

JOURNAL OF THE AMERICAN INSTITUTE OF PLANNERS: AUTUMN, 1944.—*The American Institute of Planners, Room 7-231, Massachusetts Institute of Technology, 77 Massachusetts Avenue, Cambridge 39, Mass. $2 a year. Single copies, 50c. 38 pp.*

After a lapse of a year and a half the AIP resumes publication of its quarterly journal in a greatly improved format, with the 161st issue devoted to developments in urban planning. An article by Tracy B. Augur, Assistant to the Director of the Department of Regional Studies, TVA, analyzes the plan of Stuyvesant Town, New York; Alfred Bettman, who has played a leading part in drafting the planning laws of the United States and was formerly Chairman of the Cincinnati City Planning Comm[illegible] presents "Problems of Planning and Dem[illegible]racy in Urban Redevelopment Legislation"; Russell VanNest Black, author of *Planning for the Small American City* and Consultant to the New Jersey State Planning Board, "The Composite Profession of Planning"; John T. Howard, Planning Director of the official City Planning Commission of Cleveland, "An Urban Rehabilitation Plan for Cleveland"; and Robert C. Weinberg, Senior Planner with the Cleveland City Planning Commisison, "A Technique for Urban Rehabilitation." The issue also includes Book Notes and Reviews, Planning Record, and Institute Affairs, directed mainly toward members of the AIP.

Education for Planning

COMMUNITY PLANNING FOR YOUNGER CITIZENS—A MANUAL FOR TEACHERS. *New England Town Planning Association, 77 Massachusetts Ave., Cambridge 39, Mass. 32 pp. Illus. 25c.*

How the school can play a major role in revitalizing our towns and cities is shown in this pamphlet. The Association outlines a course on community planning, and suggests material for planning projects to be worked out in the schools. The planning program can be integrated with the life of the community—with students visiting the various local government offices and town officers visiting the schools. Young people should be given the chance to work out their ideas on what they consider to be an ideal park system, how to solve the housing shortage, where to place the schools, etc., with their own community as the point of departure, write the authors. As William Roger Greely explains in the introduction, "The fact that a definite interest in the community is established in a growing mind constitutes a prophesy of better citizenship to come."

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The end of the war will bring a great Air Age. Will your town be ready for it? Your returning fliers, your business men, your young people—all will want to fly. For their convenience, for business development, for your town's future growth—begin planning landing facilities now!

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Answers to all these questions are found in the popular booklet, "What Your Town Needs for the Coming Air Age." Thousands of cities and towns from coast to coast are already using it as a guide in planning their own landing facilities. It tells how you can put your city or town on the air map and how it will benefit, how to select landing facilities from the types discussed, how to plan economically, how to finance and many other helpful suggestions. This valuable booklet costs you nothing. Simply write: Piper Aircraft Corporation, Dept. AC124W, Lock Haven, Penna.

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Speaking in Public

HOW TO MAKE A SPEECH AND ENJOY IT.—*By Helen Partridge, illustrated by Mary Stevens. National Publicity Council, 130 E. 22nd St., New York 10, N. Y. 24 pages. 1944. 75c.*

An admirably organized monograph. The author has practiced in writing what she preaches about speaking. In a manner calculated to encourage rather than confuse the novice, the booklet presents excellent advice on preliminaries, preparing, polishing and delivering your speech. One sentence in the last section goes straight to the heart of the matter: "Many admonitions are of little value to the amateur for the simple reason that the more firmly he has his mind on *what* he is going to say, and the less he is concerned with *how* he says it, the more successful his speech will be." Miss Patrtridge does not waste space in useless admonitions.

Purchasing Techniques

PURCHASING IN TEXAS COUNTIES.—*By H. C. Bradshaw & E. J. Hervey. Texas Agricultural Experiment Station, College Station, Texas. July 1944. 16 pp.*

Good purchasing procedures are defined by the authors who describe the techniques used in various Texas counties. This study shows that the use of good purchasing procedures will reduce the total cost of items by at least 15 to 20 percent. In most cases where savings were noted there was a responsible official to study the past, present, and future needs of all the departments, thus keeping themselves informed on the trend of prices.

Municipal Government Information

THE MUNICIPAL YEAR BOOK—1944.—*Clarence E. Ridley and Orin F. Nolting, Editors. The International City Managers' Association, 1313 E. 60th St., Chicago 37, Ill. 1944. x + 646 pp. $8.50.*

The annual authoritative resumé of activities and statistical data of American cities. This compilation serves the city official as a basis for analyzing existing conditions and forecasting the trends in municipal government.

There are the usual chapters and charts on Governmental Units, Municipal Personnel, Finance and Activities, and the Directories of Officials. There are also a few new sections in this year's volume—one on the long-range planning activities of nearly 900 cities, and the other, a presentation of per capita revenue and expenditure data for all cities over 25,000. The planning section gives the extent of planning for post-war capital improvements, the estimated value of such improvements, and the extent to which cities have established reserve funds and reduced their bonded debt.

Valuable additions to the Year Book are new personnel data giving the number and type of credit unions for city employees, and the organization, activities and expenditures of local public health agencies.

The 1943 developments in health and welfare, housing, public works, planning and zoning, utilities, etc., are outlined by authorities in the various fields.

Forms of Municipal Government

FORMS OF MUNICIPAL GOVERNMENT — HOW HAVE THEY WORKED? *National Municipal League, 299 Broadway, New York 7, N. Y. 20 pp. 25c.*

Describes and evaluates the four different types of government structure in use in American cities today—the Council-Manager, the Strong Mayor, the Commission, and the Weak Mayor. The Council- or City-Manager plan has proved to be the most efficient, writes the League, because of its non-partisan nature—separating policy and administration—and its provision for centralized responsibility and an expert executive. But, warns the pamphlet, although the welfare of the citizen is best protected under a city-manager, we must be aware that no form of government will in itself produce good government, for there must be an informed and alert electorate at all times.

Other Reports Received

GROSSE POINTE PARK, MICH.—2nd Annual Report: Fiscal Year April 1, 1943—March 31, 1944. 22 pp.

HUNTINGTON PARK, CALIF.—Annual Report: Fiscal Year July 1, 1943—June 30, 1944. 38 pp.

OGLESBY, LA SALLE COUNTY, ILL.—Semi-Annual Report. May 1, 1944 to October 31, 1944. Prepared by Edward Hand, City Clerk. 27 pp.

PALO ALTO, CALIF.—Annual Report Fiscal Year 1943-1944. 128 pp.

SALINA, KAN.—City Clerk's Annual Report for year ending December 31, 1943. Compiled by Charles E. Banker, City Clerk. 38 pp.

WASHINGTON—State Auditor's Report on the Financial Transactions of the Incorporated Cities and Towns of the State. Division of Municipal Corporations, Olympia, Wash. 190 pp.

Information Regarding Municipally Owned Airports in Virginia Cities.—League of Virginia Municipalities, 902 Travelers Bldg., Richmond, Va., October 1944. 25c. Free to Virginia Municipal Officials.

Post-War Improvements. — Preliminary Six-Year Program for Planning, Land Acquisition and Construction. San Francisco City Planning Commission, Room 252, City Hall, San Francisco, Calif. October 1, 1944. Mimeo. 47 pp.

Rates of Pay and Conditions of Employment of Sanitation Laborers in Seventeen Cities in the United States in 1944. Bureau of Municipal Research of Philadelphia, 311 South Juniper Street, Philadelphia 7, Pa. October 1944. Mimeo. 7 pp.

Standards for the Installation and Operation of Centrifugal Fire Pumps. National Board of Fire Underwriters, 85 John Street, New York 7, N. Y. September 1944. 52 pp.

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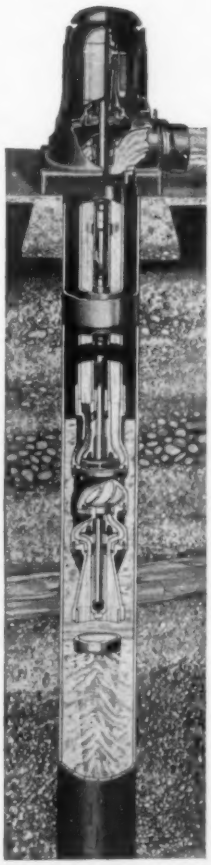

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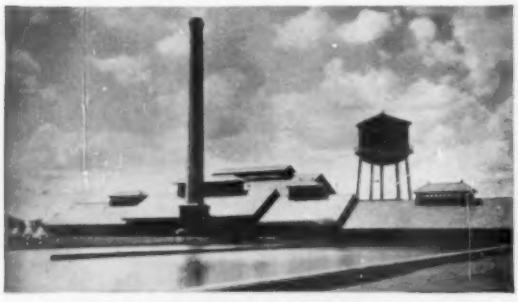

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News and Illustrations

Items of Interest to City, Town and County Officials and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

C. H. Becker Dies— R. D. Wood Official

Charles H. Becker, Sales Manager of the Hydrant and Valve Department of the R. D. Wood Co., Philadelphia, Pa., died on November 9 at the age of 51 after a long illness.

Mr. Becker was well known in the water works field. He had been associated with R. D. Wood Company since 1913 and was manager of the Hydrant and Valve Department for the past seventeen years.

He was also a director of the Florence Pipe Foundry and Machine Company of Philadelphia; a member and director of the American Water Works Association; and President of the Water and Sewage Works Manufacturers Association.

He was a member of the Overbrook Country Club, Downtown Club of Philadelphia, and the Railroad and Machinery Club of New York.

Motorcycle Crash-Fire Fighters

Though by no means common occurences at our airports, crash alerts and their resultant fires must be expected and prepared for. To combat these disasters, the airports are now equipped with the most modern and effective extinguishing agents and equipment, as well as a personnel trained in the methods of aircraft fire fighting.

Regarding equipment used in combating airport fires, the Indian Motocycle Co., Springfield, Mass., built in Springfield the Maxim experimental machine that paved the way for the more modern machines now in use. During the present time Indian manufactures the engine frame and chassis while the Walter Kidde Co., 140 Cedar St., New York, completes the fire fighting assemblage.

The Walter Kidde Co. are the manufacturers of the Built-In Extinguishing System now installed in our new fighter planes. Here is how the system works: at the first sign of fire the pilot pulls a handle which sends carbon dioxide gas from Kidde cylinders to flood the engine compartment and snuff out the blaze.

All the rules of correct fire-fighting apply to aircraft fires and there are three prime objectives: rescue personnel; rescue cargo and equipment; extinguish the fire. As soon as the wail of the crash siren mingles with the blare of the fire alarm, the field's fire-fighting equipment roars out to the runway. This equipment is usually a chemical truck, a standard crash truck, an ambulance, and several miscellaneous vehicles bearing men and portable equipment. From another direction come motorcycles and jeeps bearing armed guards to establish fire lines.

Fires that present the toughest battles are those resulting from a crash, and a great deal of planning and thought is given to the equipment used as well as to the general rules of noting wind direction and sweeping the fire away from vulnerable sections not yet reached by the flames. Naturally, the equipment used must be highly mobile and designed to meet conditions under which it is to operate, for time is an important factor and speed is essential. Nipping a fire in the bud is doubly important because of the large amount of gasoline usually present.

Mobile fire-fighting equipment is available in all sizes, types and kinds . . . from a motorcycle or a trailer to a 25-ton, 6-wheel drive fire truck with a top speed of 50 mph and a pumping capacity of 3 tons of CO_2 a minute. Most airport crash trucks are equipped with from four to ten 50-pound CO_2 extinguishers connected to one or two hose reels, as well as a complete set of foam, soda-acid and carbon tetrachloride extinguishers and the most modern fire-fighting equipment available. Drivers and fire fighters wear especially treated asbestos suits, masks, gloves and boots.

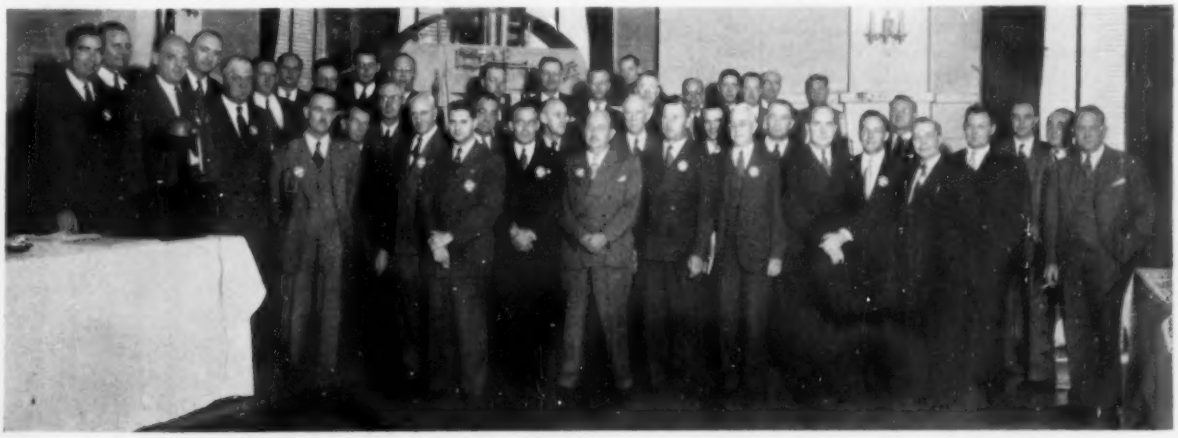
Motorcycles and jeeps are used as supplementary equipment as in some cases small highly mobile equipment is best suited for specific fire locations. Motorcycles carry two 10-pound portables and two 50-pound units with attached hose and reel.

Etnyre Dealers Attend Sales Meeting

Executives and dealers of the E. D. Etnyre & Co., Oregon, Ill., recently held a 4-day sales meeting in Oregon where post-war marketing policies and an active sales program were formulated. In a tour of the plant Etnyre dealers were shown a preview of new Etnyre developments and a demonstration of the equipment.

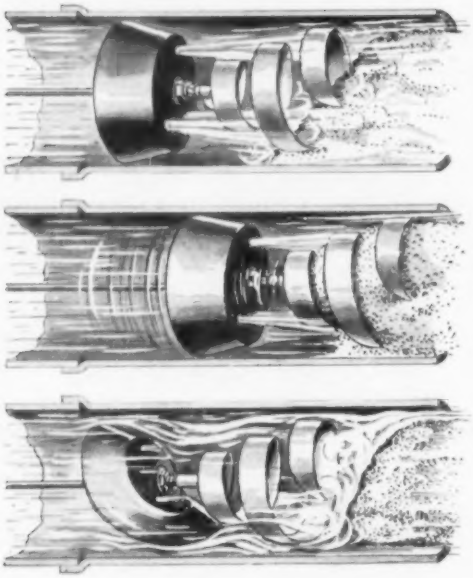
The business sessions extended over a 2-day period enabling dealers and company officials to draw up complete operating details of their 1945 selling campaigns, ready to swing into action when the company's facilities can be entirely reconverted to peacetime production. The company has been a leading supplier of roadbuilding and flusher equipment for all branches of the armed services. "Black-Topper" Distributors are used in the construction of naval bases, access roads and air landing strips; Sanitary Street Flushers are fighting the battle of disease on all fronts, helping to lay dust and furnish extra supplies of water to our fighting men.

Dealers from 22 states were represented as well as the District of Columbia and Toronto, Canada, making the meeting particularly successful because such a representation brought to light a greater range of dealers' problems and resulted in a closer working arrangement between the executive and selling groups.



Officials of the E. D. Etnyre & Co. and dealers representing 22 states attend a four-day sales meeting at the home plant, Oregon, Ill.

"FLEXIBLES" + WATER PRESSURE



CLEAN SEWER PIPE!

ACTION NO. 1 WATER JETS WASH AWAY SAND
The head pressure of water in the manhole causes the water to jet through the holes in the Rubber Cup. This water levels off ahead and washes away loose sand during the whole cleaning operation.

ACTION NO. 2 LIKE A CORKSCREW, IT BORES IN
Powered by Flexible Rods, the auger bores in, loosening the sand or cutting roots while the water continues to spurt through holes in cup. The line being cleaned must be partially free flowing because this method depends entirely upon the head pressure to force the loose materials down the line.

ACTION NO. 3 RELEASING WATER PRESSURE
A pull back collapses the cup and releases a greater volume of water when the water level in the manhole rises too fast. This also serves to wash the sand or obstructions faster. Write today for illustrated catalog showing the various types of Flexible equipment.

615 Pickwick Bldg. Kansas City 6, Mo.
1624 Harmon Place Minneapolis 3, Minn.
P. O. Box 694 Gulfport, Miss.
41 Greenway St. Hamden, Conn.

FLEXIBLE SEWER-ROD EQUIPMENT COMPANY
9059 Venice Boulevard Los Angeles 34, California

401 Broadway New York 13, N.Y.
2645 E. 75th St. Chicago 49, Ill.
P. O. Box 694 Pittsburgh, Pa.
P. O. Box 165 Atlanta, Georgia

Cast Iron Pipe

PLAIN CAST OR SPUN CENTRIFUGAL

Cast Iron Pipe and Special Castings, Bell and Spigot, Flange, Flexible Joint, Culvert, Milled and Plain End Tubes, Cylinders, Flanged and Bell and Spigot Fittings, High Pressure Fire Service Pipe, Warren Short Body Specials, Threaded End Pipe.

Size 2 to 84-inch

Pipe manufactured in accordance with standard specifications adopted and approved by water works associations and engineers.

Warren Foundry & Pipe Corp.
11 Broadway, New York City

Warren Pipe Co. of Massachusetts
75 Federal Street, Boston, Mass.

CENTRIFUGAL PUMPS FIRE HYDRANTS A.W.W.A. GATE VALVES

Manistee single-stage, double-suction pumps, 75-20,000 g.p.m. capacity

Manistee multi-stage pumps, 50-3500 g.p.m. capacity with heads up to 1600 feet

Write for Bulletins

MANISTEE IRON WORKS CO.
MANISTEE MICHIGAN

6 TIMES FASTER ICE CONTROL with FLINK SPREADER

Flink WD3 spreader equipped with clutch control, can be operated from cab without stopping truck until emptied. Fits all dump trucks, attaches like original end gate. Spreads all granular materials, thick or thin, forward or backward, full or ½-width of street. Write for literature.

The FLINK CO. 502 Vermilion Streator, Ill.

Marion Metal Products Purchases Plant

In line with a widespread expansion plan, Marion Metal Products Co., Marion, Ohio, has purchased the entire plant and assets of the Defiance Pressed Steel Co., also of Marion, according to an announcement by G. H. Herr, Vice-President and General Manager.

G. E. Herr

The entire body and hoist division of the company is now housed in in this new plant, and activities there will be devoted exclusively to the manufacture of the complete line of dump bodies and hydraulic hoists which Marion Metal started to manufacture in the early twenties. The original plant building will revert, after the war, to the manufacture of steel grave vaults which has been curtailed because of the emergency. It is planned to continue the stamping business formerly conducted by the Difiance Pressed Steel.

Officers of the company in addition to G. E. Herr are: J. M. Strelitz, President; L. E. Oberlander, Treasurer; J. L. Halberstein, Secretary; E. J. Shiefer, Charge of Body Sales and Assistant Treasurer; L. H. Ervin, Superintendent of Vault Division; H. H. Jacobs and J. C. Gay, Field Engineers.

G. E. Simons Appointed to G-E Post

George E. Simons has been appointed Advertising and Sales Promotion Manager of the Air Conditioning and Commercial Refrigeration Divisions, General Electric Co., Bloomfield, N. J., according to a recent announcement.

W&T Chlorinators on Normandy Beachhead

Among the first equipment, other than weapons, to land on the beaches of Normandy during the invasion were four chlorinators manufactured by Wallace & Tiernan Co., Inc., Newark, N. J., according to information released by the U. S. Army.

The equipment was in operation as soon as the reconnaissance squads of the Engineer Combat Battalion, in charge of purifying water, located small stream. The chlorinators pump 15 gallons of unpurified water per minute, adding soda, ash, alum, calcium hypochlorite and other chemicals. Through the chlorinators the water passes into Wallace & Tiernan filter machines, where the water filters through 15 different sizes of sand and gravel and sets a purified water production record of 40,000 gallons a day.

Merger Forms New Valve Company

The Rucker-Vaughn Co., 300 17th St., Oakland, Calif., was recently established as the result of a merger of two Oakland firms, the Vaughn-G. E. Witt Co., and the Rucker Equipment Co. Co-partners of the company are Clark E. Rucker, in charge of sales, and Clifford S. Vaughn, in charge of production.

The new company manufactures a complete line of standard pressure valves, steam and air-atomizing oil burners, a special compressed air line lubricator, and is sales agents for a group of compressed air and production tools.

Martin R. Kennedy represents the firm in Portland and J. C. Ross in Seattle. A complete valve rebuilding and repair department is maintained at the company's Emeryville plant. The valve division has played an important role in recent years supplying valves to war industries.

Both concerns involved in the merger have been active in Northern California for many years. The Vaughn-G. E. Witt Co. was established in San Francisco in 1903 and has been in continued operation since then. The Rucker Equipment Co., manufacturers of the Arnold Compressed Air Line Lubricator and sales agent and distributor for a number of national compressed air and production tool lines, has been active for several years.

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He can give you prompt, accurate machine shop and parts service, beyond his normal service on cars, trucks, buses, tractors and other automotive units. His skilled machinists and complete shop equipment are available for work on your other mechanical units. Of course, his complete stock of 100,000 service parts, of tools, equipment and accessories is as close as your phone at all times.

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NATIONAL STANDARD PARTS ASSOCIATION
35th Floor, 8 South Michigan Avenue, Chicago 3, Illinois

GET SAFETY *first*... *Skidproof* ICY ROADS WITH CALCIUM CHLORIDE TREATED ABRASIVES

THE first hours after ice forms on roads are the hours when the most serious losses of life and property occur. In a few hours, drivers learn to adjust their driving to meet highway conditions, no matter how bad.

Calcium chloride treated abrasives give drivers safety *FIRST* because they act the instant they touch the pavement to provide a sandpaper-like surface that stops skids and gives traction. The treated stockpiles keep material unfrozen, easy to load and ideal for fast spreading.

Even in cases where complete ice-removal may later be desirable, the quickest and best protection to traffic in the early critically dangerous hours is a speedy skidproofing application of abrasives treated with calcium chloride.

Get our Bulletin No. 27 now and be prepared to see that traffic in your area gets safety *FIRST*. Calcium Chloride Association, 4145 Penobscot Building, Detroit 26, Michigan.

ICE CONTROL WITH

CALCIUM CHLORIDE

FAST · POSITIVE · ECONOMICAL

Gears Icy Roads to Tires

Crabbe and Fleming Selling HYDRO-TITE

Ben F. Crabbe, Birmingham, Ala., is again selling HYDRO-TITE and FIBREX for Hydraulic Development Corp., 50 Church St., New York 7, N. Y. He will sell these products in Alabama, Georgia, Mississippi, Tennessee, and Florida, the latter state being an addition to the territory he formerly covered for the company. He maintains a warehouse stock at Birmingham.

Ben F. Crabbe

The corporation also announces that Fleming, 205 W. Wacker Drive, Chicago, Ill., will handle the sale and distribution of HYDRO-TITE and FIBREX in Indiana, Illinois, Wisconsin, and Michigan. Fleming is widely known in municipal circles and will maintain a warehouse stock in Chicago.

Fleming

Motorola Demonstrates New 2-Way Wave Length

After four years of exhaustive experiments Motorola Radio engineers under Norman E. Wunderlich, Manager of the Communications Division, Galvin Mfg. Corp., 4545 W. Augusta Blvd., Chicago, Ill., recently demonstrated that two-way FM radiotelephone communication in the 118 Megacycle band between roving mobile units was definitely feasible. This may solve the present shortage of wave lengths for police and fire departments, public utilities, and other governmental agencies.

Before a group of 85 communications engineers with R. D. Dondanville, Chief Communications Engineer for the Commonwealth Edison Company of Chicago, at the microphone and other noted communications engineers riding in the three test cars, two-way service was clearly, distinctly and quickly established. Even on Wacker Drive, a two level roadway of reinforced steel and concrete, messages were clearly received and efficiently dispatched. Communication was solid at all times during the two hours of the test. Station-to-car and car-to-station reception was solid for a radius of 20 miles and car-to-car reception was excellent short of five miles.

Broadcasting on this wave length appeared superior to that of the 30 to 40 band usually allotted to police and fire departments. Certain interferences were totally absent in the higher range. Induction frequencies from ignition systems, diathermy machines, trolley wires, and other electrical sources did not interfere with either reception or transmission on the 118 band. Static and other noises were entirely eliminated.

In addition it was demonstrated that the signals wash out at a radius of 35 to 40 miles with no skip interference such as is usual on the 30 to 40 megacycle band. This quality opens up a whole new band of wave length. By allotting, say, three frequencies to each hundred miles, and controlling the power output, Motorola Radio engineers believe sufficient frequency channels may be available to more than present needs.

Third Star for Kewanee "E" Flag

The employees and management of the Kewanee Boiler Corp., Kewanee, Ill., have received their fourth Army-Navy "E" award in the form of a third white star to be added to their "E" flag. Notification of the award came in the form of a letter from Under Secretary of War, Robert E. Patterson.

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. . . For Prompt Action When The War Is Won

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STEEL DECK GRANDSTANDS

Let Pittsburgh-Des Moines engineers work with you in planning your future grandstand requirements *now*. Be ready for construction—ahead of the post-war rush!

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AUTOMATIC POWER OR TANK PRIMERS

AIR RELEASE VALVES

FOR FILTER PIPE LINES DISTRIBUTION LINES AND OTHER USES

17 TYPES

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Electrical Corrosion Control

Proven on hundreds of tanks from coast to coast, Rusta Restor—the cathodic (i. e. electrical) method maintains steel tanks in an "electro-negative" state that not only prevents rusting but gradually removes the effect of any earlier rusting.

Rusta Restor is modest in first cost and uses the current required by only one light bulb—at safe low voltages. Each installation engineered to the individual tank and water conditions. Electrode, or the more newly developed electrodeless type that avoids any fouling due to icing. Detailed description of interest to engineers and operating men sent on request. Write today.

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Division of

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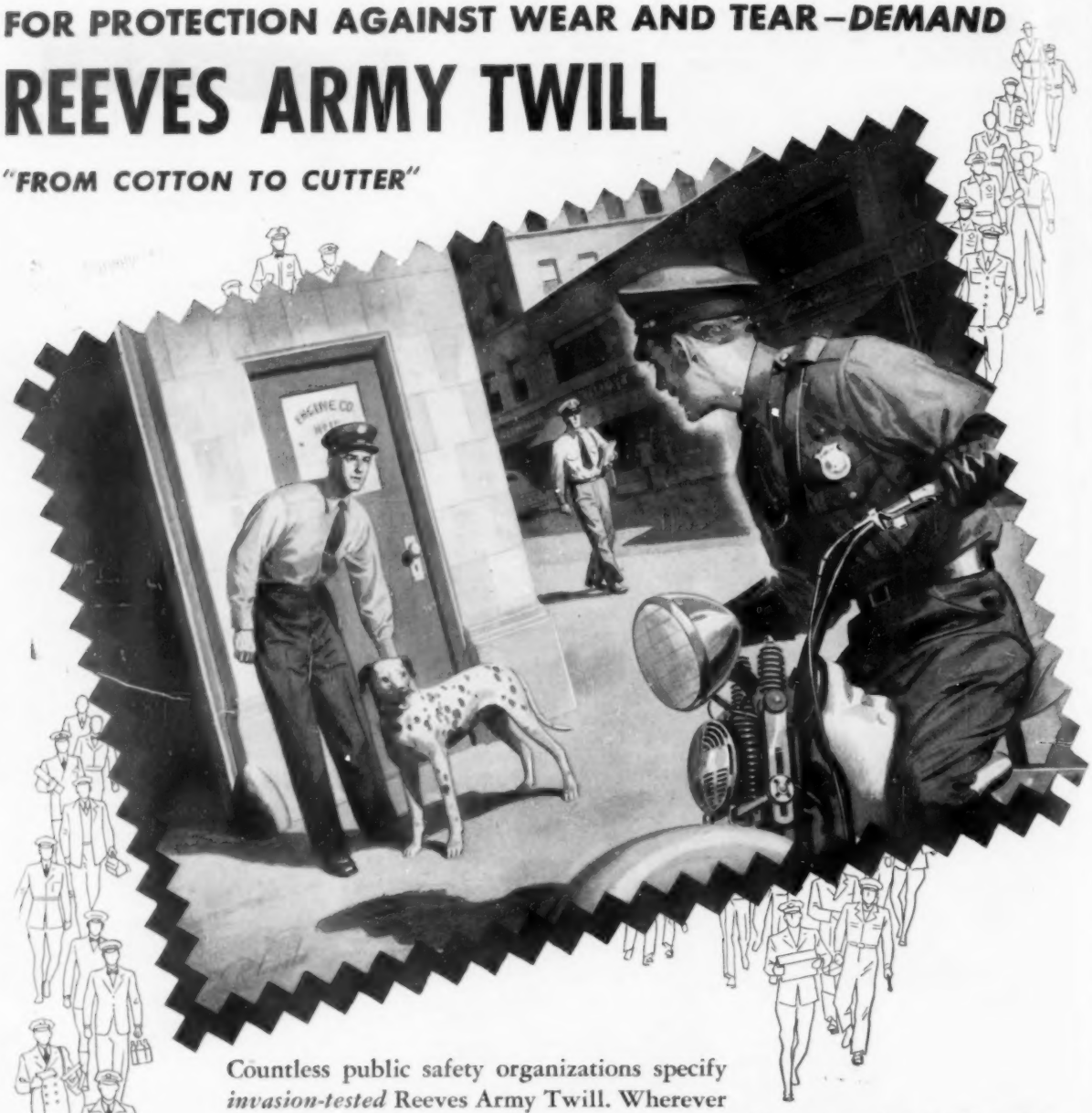
FOR PROTECTION AGAINST WEAR AND TEAR—*DEMAND*

REEVES ARMY TWILL

"FROM COTTON TO CUTTER"



Countless public safety organizations specify *invasion-tested* Reeves Army Twill. Wherever durable, good-looking uniforms are needed, this top-quality fabric tailors smartly and gives superb service. Over 80 million yards of it have already been used to help equip America's fighting men, and it is proving itself under the toughest climatic and combat conditions of global war. This fabric, Sanforized Shrunk* and color-fast to sun, water and perspiration, will meet *your* post-war uniform needs. When the time comes to order them, choose from a wide range of popular colors, for long-lasting good looks insist on Reeves Army Twill.

**Residual shrinkage less than 1%*

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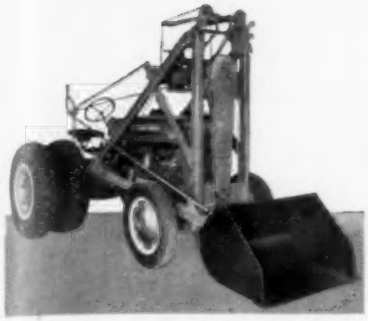


The White front-end loader for International I-6 and ID-6 tractors has the extensible boom and mechanical power take-off from front of tractor engine.

Improvements for New Front End Loader

A new addition has been made to the line of loaders for wheel-type tractors manufactured by the White Manufacturing Co., Elkhart, Ind. This is a front-end loader for use on International I-6 and ID-6 tractors embodying the extensible booms and mechanical power take-off from front of the tractor engine.

The extensible boom arrangement is exclusive with White loaders. It places the bucket close to the tractor when digging, but when the bucket is raised it moves outward and upward discharging two feet ahead of digging position. This permits loading into high standard truck bodies and spreading of material without hand shoveling.

The bucket can be held or dumped at any point in its lift. It can be removed and a bulldozer blade attached. Option is given of ¾-, ½- or ⅝-cu. yd. capacity buckets. A ¾-cu. yd. bucket is available for light materials such as snow, coal or light chemicals.

In addition to this new loader, the White loader is also made for International ₣20 and I-30 tractors already in service. It is also furnished for Case tractor models CI and DI, and for Minneapolis-Moline UTI.

Second "E" Award for Aurora Pump Co.

The Aurora Pump Co., Aurora, Ill., has been notified by a letter from Admiral C. C. Bloch, USN (Ret.), Chairman of the Navy Board for Production Awards, of their first renewal of the Army-Navy "E" Award for continued outstanding production.

This company manufactures a wide range of centrifugal and turbine-type pumps which have been supplied to virtually all branches of the armed services, notably the Navy.

Simple ceremonies were held crediting the employees who, in Admiral Bloch's words, "have indicated their determination and ability to support our fighting forces by supplying the equipment necessary for ultimate victory."

S. I. Zack Joins Harrisburg Engineering Firm

Samuel I. Zack has joined the staff of Gannett Fleming Corddry and Carpenter, Inc., Harrisburg, Pa., as Sanitary Engineer on sewage and water purification, according to a recent announcement.

Mr. Zack's former associations include ten years spent with the Sanitary District of Chicago in the sewage experimental station, and on the design of sewage treatment works. More recently he has been connected with the Fraser Brace Engineering Co., New York, working on the water, sewage, and industrial waste treatment plants, and later with Stone and Webster Engineering Corp., New York, occupied with water works and sewage plants in connection with war work.

Appointments Announced by The Dorr Company

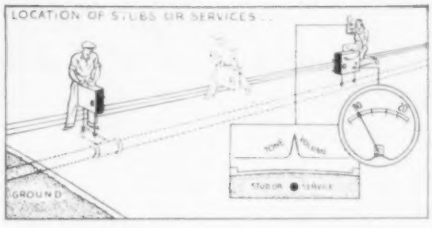
Several important appointments in the Sanitary Engineering Division of The Dorr Co., 570 Lexington Ave., New York 22, N. Y., have just been announced, in order to meet post-war planning activities.

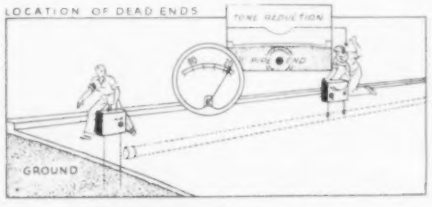
Fred G. Nelson has been appointed Manager of the Western Territory and transferred to Los Angeles.

O. V. Lindell has been appointed Manager of the Central Territory in Chicago. He formerly was at the Kansas City office which will continue to serve the Southwest Territory.

W. A. Darby continues as Manager of the Eastern Territory at the New York office.

M-SCOPE Buried Pipe and Cable Finder





FREE 16-PAGE BOOKLET UPON REQUEST

The M-Scope consists of a specially-designed radio Transmitter and Receiver, with conductive wire. In operation, the Transmitter sends out a continuous signal, and when there is no metal between Transmitter and Receiver, a definite volume of sound is heard in the Receiver earphones and the meter (mounted on Receiver) gives a definite reading. If a metal object lies between the two units, sound in earphones is louder and meter reading higher—and the pipe or other metal object is located.

The M-SCOPE is solving—successfully—the varied problems involved in the development, operation and maintenance of buried pipe and cable systems and is in daily use by representative organizations in such important groups as:

- Government Projects
- Municipalities
- Sewerage and Water Plants
- Consulting Engineers
- Airports
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- Industrial Plants
- Oil and Pipe Companies

Write for further particulars and booklet:

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PIPE LINE EQUIPMENT

"POST-WAR"
is already here for
BUFFALO-MADE AMERICAN BRONZE-CASE WATER METERS

The quality and performance you want in post-war meters are already being built into every Buffalo-made water meter.

With bronze-case meter manufacture resumed, waterworks can plan now for the metering programs delayed by war conditions.

Full information and prices on request to

BUFFALO METER COMPANY
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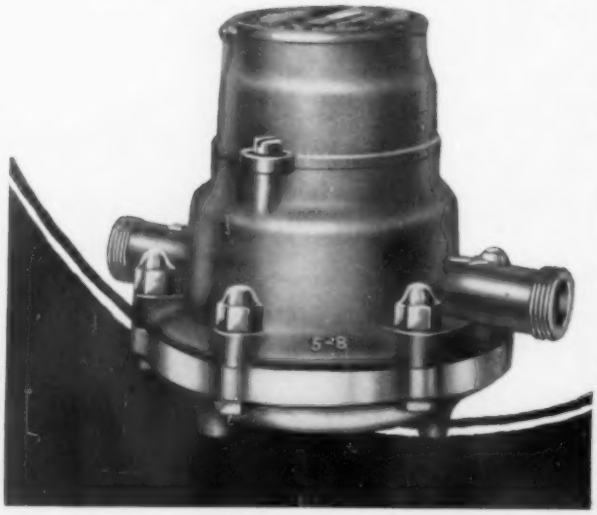

MURDOCK SINCE 1859

30 or 150?

Step on the pedal of a Murdock Outdoor Drinking Fountain on a zero day and fresh water will come bubbling forth.

So whether you have 30 or 150 days of freezing weather in your state you'll have no occasion to worry about Murdock Outdoor Water Devices freezing. **They are anti-freezing!**

Another reason why "It Pays to Buy MURDOCK."

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SELF-CLOSING ANTI-FREEZING HYDRANT

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LARGE ANTI-FREEZING HYDRANTS 1½" TO 2" INCLUSIVE

"LOCK-LID" STREET WASHERS 3/4" and 1" SIZES

"Air-Lock" ANTI-FREEZING OUTDOOR DRINKING FOUNTAIN

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Le Roi Appoints New Compressor Sales Manager

Norman M. Sedgwick, Assistant Manager of Compressor Sales for the Le Roi Co., Milwaukee 14, Wis., has been promoted to Sales Manager of that division. He succeeds Donald Heffron who resigned.

Norman Sedgwick

Mr. Sedgwick has been associated with Le Roi, manufacturers of portable air compressors, internal combustion engines, and engine-driven generator sets, for the past sixteen years, and has served in various capacities in the shop, field service, purchasing and sales departments. His affiliation with the compressor end of the business covers the past eight years, and he is thoroughly familiar with the equipment and its distribution problems.

His work with the U. S. Engineer Corps over the past several years coordinating production, shipment, and servicing of equipment involved in government compressor contracts has been an important factor in Le Roi's excellent record in meeting on schedule the Government's demands for units for the armed forces.

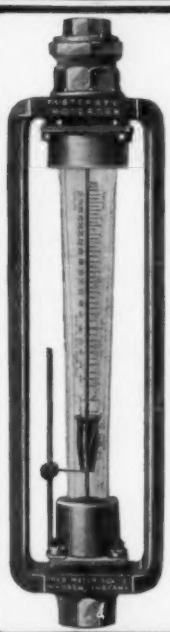
Dresser Mfg. Division Stays at Bradford

Dresser Manufacturing Co. of Bradford, Pa., makers of flexible pipe couplings and other pipeline products, has changed its name to Dresser Manufacturing Division of Dresser Industries, Inc., H. P. Boncher, General Manager announced recently.

This change of name distinguishes Dresser Manufacturing Division and its Bradford operations from the parent organization, Dresser Industries, Inc. It will not affect personnel, products, or development program of the Division.

Dresser Industries, the parent corporation, will move its headquarters from Bradford, Pa., to Cleveland, Ohio, where the executives offices will be located in the Terminal Tower. Cleveland already is the home of a member company, The Bryant Heater Co., and an affiliate, Van der Horst Corp. of America. Other member companies in addition to these are Clark Bros. Co., Inc., Olean, N. Y.; Pacific Pumps, Inc., Huntington Park, Calif.; International Derrick & Equipment Co., Columbus, Del.; Roots-Connersville Blower Corp., Connersville, Ind.; Stacey Bros. Gas Construction Co., Cincinnati, Ohio; Bovaird & Seyfang Mfg. Co., Bradford, Pa.; and Dresser Co., Ltd., Toronto.

Invaluable!



• In making a complete test of a water meter you should know the volume of water, the meter registration caused by this volume, AND the rate of flow in gallons per minute at which test was made.

• The Ford Testerate Indicator will show this rate of flow instantly and accurately. For complete meter testing it is truly invaluable.

• Information for the asking.

FORD
Meter Box Co.,
WABASH, INDIANA

INCINERATION ENGINEERS
NICHOLS ENGINEERING & RESEARCH CORPORATION
60 WALL TOWER NEW YORK, N. Y.
Consultants • Designers • Constructors

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FUNCTION BETTER AND MORE SAFELY EQUIPPED WITH

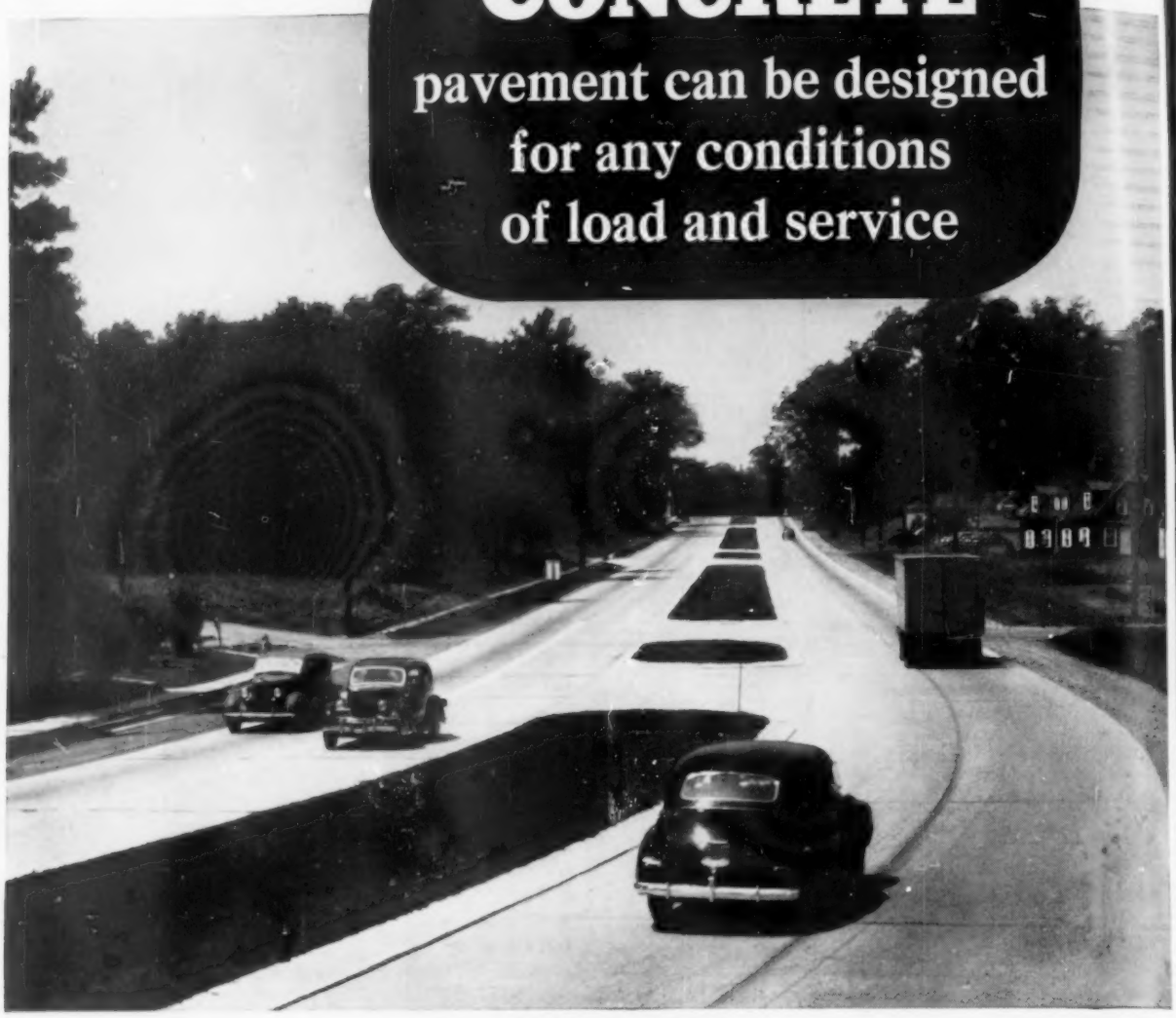
Big Beam
PORTABLE ELECTRIC HAND SEARCHLIGHTS

Invaluable for signals at highway accidents, wrecks, spotting auto licenses, illuminating hazardous approaches for night work, emergency work, maintenance work on cars, trucks, busses. Big Beam carries light where you need it . . . when you need it. Portable, handy to use . . . inexpensive, yet sturdy and long-lived. Big Beam is indispensable to Police, Highway and Maintenance Departments in any emergency, and to Fire Departments in penetrating smoke and other hazards. Throws beam 2500 feet and more and, by use of snap-on lens, gives the same volume of light over a wide area. Storage battery or dry-cell models available.

Write today for catalog and full description of Big Beam Portable Electric Hand Searchlight.

U-C LITE Mfg. Co.
Dept. B • 11 E. Hubbard St. • Chicago 11, Ill.

CONCRETE
pavement can be designed for any conditions of load and service



Concrete with its all-season strength to "take it" is the ideal pavement for roads, streets and airport runways.

Concrete pavement can be designed efficiently for any weight and volume of traffic, with neither wasteful over-design nor costly inadequacy.

Concrete pavements which are so designed, carry their traffic safely for years with a minimum of maintenance expense.

This demonstrates the basic superiority of concrete pavement, the ability to render uninterrupted service at low annual cost—the true measure of pavement economy.

Concrete pavement correctly designed, usually *costs less* than any other pavement of equal load-carrying capacity.

Write for information on latest portland cement concrete pavement design for roads, streets or airports.

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Dept. 12-4, 33 W. Grand Ave., Chicago 10, Ill.

A national organization to improve and extend the uses of concrete . . . through scientific research and engineering field work

BUY MORE WAR BONDS

The Hystevator, attached here to a Chevrolet dump truck, picks up debris or other materials and loads it in this truck.

Self Loader Helps Clean Road Ditches

The Hystevator, a self-loading attachment for dump trucks manufactured by the Hyster Co., Portland, Ore., is doing a big job on construction and maintenance programs in various municipalities, as well as increasing the effectiveness of trucking equipment.

This attachment, designed for cleaning ditches along roads and highways, can be used on any standard dump truck. In operation the truck travels along the shoulder of a ditch drawing a scraper. When the scraper is filled the truck is backed up, the scraper raised, and the contents dumped into the truck.

The Hystevator may be used also for loading operations simply by replacing the scraper with a loading hook.

Clay Pipe for Drainage of Sub-Surface Water

The problem of sub-surface water collecting under sections of roadway received successful treatment by the Massachusetts Department of Public Works. One such project, as described in a recent report by L. R. Sellew, District Highway Engineer, involves two strips of highway near Sandwich, Mass., and the use of Vitrified Clay Skip-Pipe.

This section of road often became a danger zone during spring and winter and following prolonged rainstorms. One side of this road was skirted by a long, steep slope which carried sub-surface water to the highway and flooded it. Eventually the water found its way under the surface, causing the sub-grade to become wet and spongy.

Test pits revealed there was a stratum of soil through which the sub-surface water was leaching into the sub-grade. Engineers decided to install a vitrified clay pipe drainage system along the extent of the highway shoulder giving trouble. Vitrified Clay Skip-Pipe is a recent development of the Clay Pipe industry.

A trench about 3½ feet deep was excavated and 2 inches of stone was laid along the floor. On this base Skip-Pipe was installed and the trench filled in with gravel stone to within a foot of the surface. Next, a layer of heavy paper, burlap and cloth bags was placed, followed by several inches of coarse gravel and topped with 6 inches of soil. Mr. Sellew reported that "the following winter we took particular notice of these sections, and since these installations the highway sections have been entirely dry. . . ."

Vitrified Clay Skip-Pipe is specially designed to handle the problem of permanent, fast-flowing sub-surface drainage. It provides long-life installations, drains at higher velocity, starts flowing sooner and continues to discharge longer because of its cradle design, is impervious to the action of deteriorating agencies, has great structural strength, and will not rust, corrode, or disintegrate, is low in cost and economical to lay.

For a new complete folder, covering this product in detail in its adaptation to driveway culvert and highway drainage, write The Robinson Clay Product Co., Akron, Ohio.

DEPENDABILITY
24 HOURS A DAY
JOHNSON Right-Angle
PUMP DRIVE
★ SEWAGE ★ WATER WORKS ★
FIRE FIGHTING ★ FLOOD CONTROL
The Johnson Right-Angle Gear Drive is used as a "connecting unit" between the pump and the power unit. Illustration shows a combination application. These drives are manufactured in a variety of types and sizes, each designed to meet the specifications of a wide range of applications—Sewage Disposal; Water Supply; Fire Fighting; Flood Control; etc.
★ EFFICIENT
★ ECONOMICAL
★ FULLY ENCLOSED
★ DEPENDABLE
★ COMPACT
★ LONG LIFE
The Johnson Right-Angle Gear Drive is sold through Pump and Engine Manufacturers—their local representative will explain the many advantages of this drive which is used by scores of municipalities. Write for Catalog No. 12.
JOHNSON GEAR
& MANUFACTURING CO., LTD.
MAIN OFFICE AND WORKS: BERKELEY, CALIFORNIA

Burroughs Leads . . . . . in modern payroll machines and methods

Some of the Great Advantages of Burroughs Payroll Machines

Most complete and available records for preparing management and government reports quickly and easily.

Most easily-read employee's statement of earnings, deductions and net pay.

Greatest variety of types and styles to fit any payroll accounting method.

Highest degree of automatic operation.

Greatest simplicity in form handling.

Greatest saving in keyboard time.

Greatest saving in proving time.

Since 1913, when the Income Tax law first made individual employees' earnings records necessary, the complications of payroll accounting have steadily increased. Wages and hours legislation, social security programs, withholding taxes, accounting for war bond deductions and purchases, and other special items—all presented new problems. But the new problems were constantly anticipated with new Burroughs machines and features, providing both large and small business with maximum savings in time and money.

Because there are so many different types and styles of Burroughs payroll machines—so many advanced features—Burroughs can always furnish the *exact* machines and methods best suited for your particular needs. This wide choice makes possible the integration of all aspects of the labor accounting job—payroll, cost distribution, earnings calculation and accrual, etc.—so that fewer machines and fewer hours are required. It is easy to understand, then, why the great majority of employers choose Burroughs when selecting payroll equipment.

As conditions change—as new problems arise in labor accounting—Burroughs will continue to fulfill the obligations of leadership by being first with new developments and machines.

BURROUGHS ADDING MACHINE COMPANY, DETROIT 32

1st Burroughs

IN MACHINES
IN COUNSEL
IN SERVICE

FIGURING, ACCOUNTING AND STATISTICAL MACHINES • NATIONWIDE MAINTENANCE SERVICE • BUSINESS MACHINE SUPPLIES

Paul M. Mueller Joins Blaw-Knox

Paul M. Mueller, widely known mechanical engineer, has joined the Blaw-Knox Co., Blawnox, Pa., as Chief Engineer in Charge of Development.

Resuming his career after World War I, Mr. Mueller joined Pratt & Whitney where he built measuring apparatus and a set of length standards for Hoke gages, invented a number of precise measuring instruments, and developed new methods for the mass production of gaging equipment. He developed for the American Petroleum Institute a complete gaging system for casings, cable tool joints and rotary joints.

At the Hartford Machine Screw Co. he developed a high alloy rolled thread engine studd and a method of heating cold heading dies. While with the General Cable Co., Rome, N. Y., he designed several wire drawing machines and stranding methods, and the plant and equipment for Boulder Dam power cable. In 1935 he joined Revere Copper and Brass Co. as headquarters engineer, which position he held up to the present. There he assisted in the design of a large ammuntion brass mill, a condenser tube mill, a redraw aluminum tube mill, a magnesium sheet and extrusion mill, and an aluminum and magnesium extrusion mill with casting facilities.

He is a member of the American Society of Mechanical Engineers and the Association of Iron and Steel Engineers.

BUILDERS Propeloflo

Accurately Measures Flow in Main Water Lines

VENTURI DESIGN

Provides excellent velocity distribution where fluid meets propeller, resulting in metering accuracy within 2% over a wide range of flow.

LOW COST
ACCURATE
DIRECT READING
BUILDERS QUALITY

For Bulletin 350 attach to your letterhead and mail to Builders-Providence, Inc., (division of Builders Iron Foundry), 9 Codding St., Providence 1, R. I.

Sincerely,
BUILDERS-PROVIDENCE

1 Low loading height for convenient loading.

2 Specially designed doors for easy opening.

3 Fully enclosed design to prevent "scattering".

4 Streamlined appearance to add to city's prestige.

. . . make this HEIL Garbage Disposal Unit an easy-working implement for your employees . . . a modern asset for your city

Heil Garbage Disposal Units have the "built-in" features that enable your crews to make their rounds quickly, efficiently, and with but little effort on their part. You can be proud of their modern appearance — the residents of your city well appreciate your good judgment in selecting these fully enclosed, sanitary, good-looking models.

They stay on the job dependably, because they are designed with the famous features that are typical of Heil engineering ability, assuring you minimum "time-out" for maintenance and repairs.

Specify Heil Garbage Disposal Units with knowledge that your recommendation is backed by many years of experience in quality fabrication and efficient design.

Write for bulletins.

ARMY E NAVY THE HEIL CO.

GENERAL OFFICES • MILWAUKEE 1, WISCONSIN

The machine that *never* makes a mistake

● 100% accuracy is being achieved every day wherever Addressograph is used.

Once you put information on an Addressograph plate and verify it, there can be no errors whether you write that information once, twice, or a thousand times. No chance for misspelled names, wrong figures. Every writing is accurate—and perfectly legible.

But accuracy is only one Addressograph advantage. Its amazing speed and adaptability have revolutionized the handling of assessment and tax work, voters registration lists, payrolls, inventory control, utility billing, purchase orders, addressing, and hundreds of other paperwork jobs. Addressograph is the *easy* way, the economical way of writing anything which you write more than once.

Many cities and counties install Addressograph methods to do *one* job—wind up with dozens of money-saving applications. Right now our Research and Methods Department is working with many governmental units in setting up methods for improving the handling of paperwork. Methods proved in business firms are being adapted by government. For public business is big business. If you would like suggestions for your department, telephone our local agency or write Addressograph-Multigraph Corporation, Cleveland 17, Ohio.

Addressograph

TRADE-MARK REG U.S. PAT OFF.

SIMPLIFIED BUSINESS METHODS

Addressograph and Multigraph are Registered Trade Marks of Addressograph-Multigraph Corporation

This 3-wheel power driven broom has a variable speed governor that can be adjusted to suit the speed necessary for the type of surface on which it is being used.

Power Driven Broom For Surface Cleaning

Model No. 108 Power Driven Broom manufactured by Littleford Bros., Inc., 500 E. Pearl St., Cincinnati 2, Ohio, has a 15 hp air-cooled engine having a variable speed governor with speed-regulating control to revolve the brush at any desired speed. The types of road surface make it desirable to use different brush speeds.

The broom is of 3-wheel construction making a more flexible trailing unit than the 2-wheel type. It has a 34-inch diameter brush equipped with outboard dustproof bearings; is of monoframe construction providing greater visibility for the operator, and hydraulically controlled for raising and lowering the brush. This control makes it possible to raise the brush off the ground in only 30 seconds. An adjustable screw on the hydraulic jack automatically lets the brush drop down to the proper point of contact with the pavement, thus preventing unnecessary wear and breakage of the broom fibers that usually occurs when the entire weight of the brush rests on the pavement.

A few strokes on the hydraulic jack raises the entire brush assembly up off the ground. After raising the brush a double safety latch automatically drops into place. On opening the air relief valve on the hydraulic pump the entire weight of the brush assembly rests on these two safety latches, thus removing all the strain from the hydraulic system and giving longer life and a more trouble-free service. This is especially important and desirable when trailing to and from the job. The whole procedure is fingertip controlled.

Partner of Leupold and Stevens Dies

Fred Leupold, Senior Partner and Manager of Leupold & Stevens Instruments, 1445 N. E. Glisan St., Portland 13, Ore., manufacturers of precision instruments and hydrography controls, died recently in Portland.

He has been succeeded as General Manager by his son, Marcus, and another son, Norbert, now is Assistant Manager.

NEW 1945 MODEL!

Bob White

ELECTRONIC BOX LOCATOR

LOCATES ALL METAL UTILITY SERVICE BOXES AS FAST AS YOU CAN WALK! (FINDS 'EM IN THE DARK)

Curb Boxes, Street Boxes, Meter Boxes, Manhole Lids

Write for our New Folder

Manufactured by

S. F. FERGUSON

11 HILL STREET, NEWARK 2, N. J.

Fresh, high quality broom fibres last longer

AFRICAN BASS FIBRES

INDIA PALMYRAH STALKS

The longer mileage you obtain from fresh broom fibres means less time-taking refilling of the broom core and valuable man-hours put to an extra use. The use of fresh, high-quality fibres in your mechanical sweeper is sound economy these days.

We are able to service every need in all types and sizes. We would be happy to receive your request for samples and quotations.

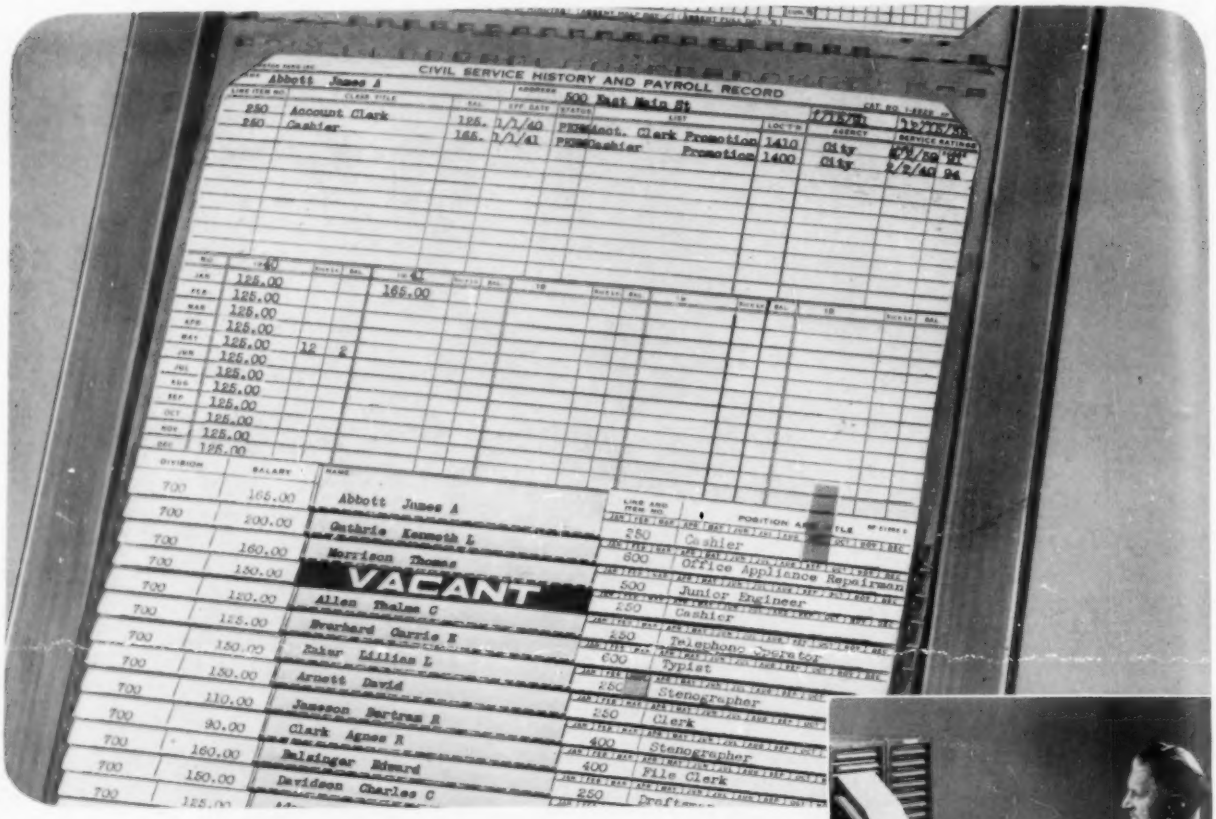
MOUNTAIN HICKORY SPLINTS

STEEL WIRE SWEEPER STALKS

The OTTO GERDAU CO.

82 Wall Street, New York 5, N. Y.

An efficient personnel record for Civil Service Administrators



SIMPLIFY

- PAYROLL AUTHORIZATION
- FILLING OF VACANCIES
- REFERENCE AND POSTING

with **KARDEX** *Visible!*

The most modern development in maintaining Civil Service personnel and job records brings to executives the many advantages that result when complete and accurate *facts* are instantly available.

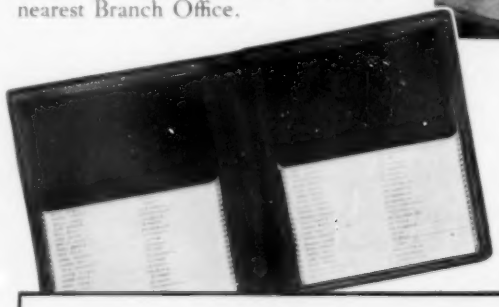
This development is the famous KARDEX *Visible* Method of Record Control. It provides in one place a personal history and payroll record card for each employee, combined with a card for each established position. By telling all the facts in a single reference, these cards save executive time and provide a factual basis for quick, sound decisions.

Every job is identified on the *visible* margin by department, salary, and title, with the name of its holder, while *vacancies* are also evident at a glance.

KARDEX prevents costly errors in payroll authorization . . . colored signals visually chart important data such as expiration of temporary or provisional appointment, or probationary period. If desired, attendance and punctuality cards can also be combined with these records

Why not investigate now? Full details are contained in our informative folder KD 275—"Government Civil Service Personnel Records"—free from our nearest Branch Office.

The simple operation of Kardex is equalled by its ability to save executive time with *visible* control.



For the smaller municipality or administrative unit, Kardex is available in handy "book units" with all the advantages of Kardex in cabinets.

SYSTEMS DIVISION

REMINGTON RAND

Buffalo 5, New York

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Diesel Engine Manufacturers Hold Annual Meeting

On December 6, the Diesel Engine Manufacturers Association, 1 North LaSalle St., Chicago, Ill., held their annual meeting in Cleveland.

Robert E. Friend

The main feature of this session, according to Robert E. Friend, President of the Association and President of Nordberg Mfg. Co., Milwaukee, Wis., was a round-table discussion of problems facing the industry where Diesel engine makers aired issues that confront them now and those that probably will arise at the end of the war.

Harvey T. Hill, Executive Director of the Association discussed one of their new activities, that of watching state legislation that may affect Diesel engine interests. Progress reports from committees on public relations, traffic, insurance and education were given.

New Catalog Discusses Plastic Coating

A new folder entitled "Amercoat No. 33 Plastic Coating," is available from the Amercoat Division, American Pipe and Construction Co., P. O. Box 3428, Terminal Annex, Los Angeles 54, Calif.

This describes the properties, uses and benefits of this general-purpose, cold-applied, protective coating, and contains data relative to the elimination of corrosion on equipment and structures of all kinds, as well as the contamination of products resulting from contact with corroded surfaces. Technical facts discuss application, coverage, colors, degrees of weathering, moisture, absorption and transfer, and resistance to chemical fumes, splash and overflow of acids, alkalies, salts, oils, water. Many proven uses in a wide spread of industries are described. A list of corrosive agents, to which Amercoat No. 33 is impervious, is included.

Machine Guards Tires From Nail Punctures

The Honolulu Rapid Transit Company at Hawaii found that tire punctures sometimes delayed busloads of workers bound for vital war jobs. To solve this problem W. A. Schilling, Superintendent of Shops and Trolleys at the company, and W. E. Eakins, an engineer of the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., built a retriever to guard bus tires from punctures.

This unusual device, made mostly from scrap and used equipment, consists of the following items welded to a long I-beam chassis: a small air-cooled gasoline motor, an electric generator converted from a Westinghouse motor in service since 1905, and some magnet coils salvaged from old street car equipment. Small airplane wheels and tires turning on old street car axles machined down complete the device. Turning at 1310 revolutions per minute, the generator produces direct current at 200 volts, 11 amperes, and this current energizes the magnet coils. The retriever is drawn by truck or bus over the routes of the HRT buses, and has reduced by about 15 percent the number of buses out of commission from punctures.

Two of the transit company's employees sweep the retrieved metal, nails included, into a shovel. The retriever has picked up more than 1,000 pounds of scrap since first being used.

HEAR YE! HEAR YE!

Freezing nights ahead! Be prepared—with that dependable ear for underground leaks,

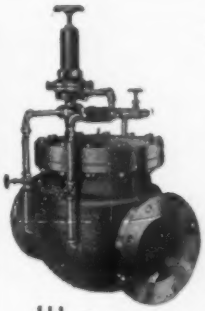
The GLOBE GEOPHONE

(Patented)

★ **Quickly and accurately locates the leaks**
★ **No digging**
★ **Simple to operate**
★ **No fragile parts to be serviced or replaced**

$75 buys the complete outfit: two GEOPHONES, connecting tubes, earphones, in heavy leather carrying case with shoulder straps. Write:

Globe Phone Mfg. Corp.
Dept. H
Reading, Mass.



WATER PRESSURE RELIEF VALVE

★

Sizes: 3" to 36" Angle and Globe Patterns

On excess pressure, due to line surges or excess pumping head, this valve automatically opens to dissipate necessary water volume to maintain desired line pressure. The valve is arranged either with atmospheric pilot valve exhaust or self-contained, according to service conditions and requirements.

Valves may be arranged to open at abnormal pressures and held open under subnormal pressures until the surge subsides, and then close when normal conditions prevail.

Write for Specifications

GOLDEN-ANDERSON VALVE SPECIALTY CO.
Fulton Building Pittsburgh, Pa.

Why Wait to Install

SPARLING Main-Line METERS

YOU might just as well have the minute by minute information on main-line flows NOW! Sparling Meters are easily installed and are as easily switched to new locations! Indicators, Recorders and Controls can be added as needed.

Bulletin 308 comes upon request. (Metrograms, too!)

R. W. SPARLING

Manufacturer of Water Measuring Equipment

LOS ANGELES 54—Box 3277, Terminal Annex
CHICAGO 16—3104 South Michigan Ave.
BOSTON 8—6 Beacon Street
622 Broadway—CINCINNATI 2
101 Park Avenue—NEW YORK 17

It Abolishes Tax Search

Sundstrand Automatic Tax Billing Machine.

In many cities when a taxpayer asks "How much taxes do I owe," a frank reply could be "You can search me!"

But in any city where Underwood Elliott Fisher has set up a modern tax billing and accounting system with a unit tax ledger card, *you can search it* and give the taxpayer the right answer as quick as that. Because the tax ledger card contains the record of transactions of that particular tax account from its beginning.

All tax amounts are posted to the ledger card simultaneously with the making of the tax roll and tax bill. All tax payments are posted to the unit tax ledger card and the balances are automatically recorded and proven. From these records it is easy at any time to set up a trial balance of delinquent taxes showing delinquency by years for each property. Having all these essential data on the unit tax ledger card, to give the status of any account means merely turning to this card.

Let us give you full particulars

UNDERWOOD ELLIOTT FISHER CO.

Manufacturer of the Famous Sundstrand Municipal Accounting Machine

One Park Avenue — New York 16, N. Y.

Indian Motocycle Appoints Advertising Manager

Matthew C. Keevers has been appointed Advertising Manager of the Indian Motocycle Co., Springfield, Mass., according to a recent announcement.

Matthew C. Keevers

Mr. Keevers joined the staff of the company in 1941 and has had wide experience in the motorcycle field during the past ten years.

Electronic Temperature Recorder-Controller

An electronic type resistance thermometer suitable for indicating, recording, and controlling temperatures between 100° F. and 1,000° F. has been announced by the Bailey Meter Co., 1050 Ivanhoe Rd., Cleveland, Ohio. This recorder operates on the highly accurate null-balance principle and provides instantaneous balancing action by electronic detection and control. Unbalance of the measuring bridge is detected by electron tubes without the aid of a galvanometer or other moving parts.

Indicating, recording, and controlling mechanisms are all driven by the same reversible electric motor which adjusts the slidewire resistance to balance the measuring bridge. This motor is continuously connected to the electronic control unit which in turn is continuously connected to the measuring bridge.

These thermometers may be provided with as many as four recording pens, each one being provided with its own continuously connected electronic control unit and measuring bridge. This feature insures instantaneous response to changes in temperature.

Bailey Air-Operated Control. Electronic Control or contacts for on-off electric control may be provided for as many as two temperatures by the multiple pen Electronic Recorder-Controller. The control mechanisms required are mounted inside the recorder-controller casing and are actuated by the same reversible motors which drive the recording pens.

Alarm contacts may be provided for any or all of the recorder units. These are operated by an adjustable cam which may be set to trip at any desired position of the recording pen.

This recorder-controller has a 29-inch indicating scale which circles the chart and may be read easily at a distance of 50 feet. The pointer reading coincides with that of the recording pen.

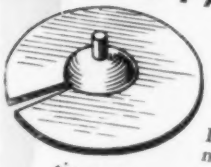
New Sales Engineer for Joy & Cox

Frank Gawan has been added to the staff of Joy and Cox, 1940 Blake St., Denver, Colo., as Sales Engineer. Mr. Gawan is well known in the Denver territory as the designer of combustion and control instruments and is exceptionally well versed in the application of this type of equipment. He was formerly connected with the Denver Fire Clay Co. in their Salt Lake City and Denver offices.

Joy and Cox represent Cochrane Corporation, Philadelphia, Pa.; Hays Corp., Combustion Engineering Co., Northern Equipment Co., Reliance Gauge Column Co., Dampney Co. of America, Thomas C. Wilson, Inc., Fisher Governor Co., Eagle-Picher Sales Co., Tube-Turns, Inc., American Car and Foundry Co., Daniel Orifice Fitting Co., Cuno Engineering Co., Bryon Jackson Co., Peabody Engineering Corp., and Manning Maxwell and Moore, Inc.

PITTSBURGH
ARCTIC
(ALSO MADE IN SPLIT-CASE TROPIC)
METERS

NUTATING DISC TYPE



For the ultimate in disc meter satisfaction. Rigid manufacturing controls, skilled assembly, and exacting test make these meters top dollar value in the general service field. Made in sizes 5/8", 5/8 x 3/4", 3/4", and 1".

Pittsburgh Equitable Meter Co.
Pittsburgh 8, Penna.

90 years of progressive storage tank engineering!

Established in 1854, the R. D. Cole Mfg. Co. has long been recognized as one of the nation's outstanding tank builders. With 90 years of "progressive storage tank experience" at your disposal, we shall welcome the opportunity to serve your tank needs.

All shapes and sizes

We have developed a complete line of elevated steel tanks for water supply, both for domestic service, and sprinkler requirements, ranging in capacity from 5,000 to 2,000,000 gallons. The designs include the standard Hemi-spherical and Self-supporting bottom, the "Cole Ovaloid," Standpipe, and many individual styles.

Storage Tanks

We also make pressure tanks for storage of gas from digestors at sewage disposal plants so that excess output at peak loads can be used during off-peak periods. Also chemical storage tanks, hot water storage tanks, tanks for bulk storage of oils and gas.

Write for "Tank Talk—No. 15A

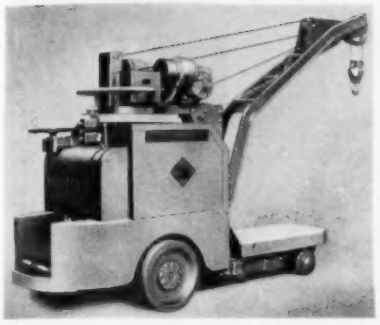
R.D.COLE MFG.CO.
Established in 1854
NEWNAN · · · GEORGIA

SUPPORT

Until the last knock-out blow is delivered to the Axis Powers it is our job at home to continue backing our Armed Forces by buying

MORE WAR BONDS

INTERNATIONAL BUSINESS MACHINES CORPORATION



This combination crane is a 4-way truck that has a wide material-handling range.

Combination Crane Truck Handles Variety Material

The Elwell Parker Electric Co., 4205 St. Clair Ave., Cleveland 14, Ohio, has announced the new model L-11C Combination Crane Truck. This has improved operating characteristics due to the addition of a separate motor for raising and lowering the boom which gives the operator a greater choice in manipulating the load. Previously a single motor served to raise and lower both boom and hook, by means of a ratchet boom adjustment which was actuated when the lift hook was pulled up against the boom.

This combination crane truck is a 4-way truck, serving as a lift-truck, a load carrier, crane and tractor. It loads itself either by picking up skid loads with the lift platform, or by lifting heavy parts and placing them on the platform for transport. As a tractor it pulls trailer cars, which may be loaded by means of the crane. The crane may be made available for heavy lifting at points where there are no overhead cranes. This model has a capacity of 6,000 pounds on the platform, 2,000 pounds on the hook at 42-inch radius, and 1,000 pounds on the hook at 84-inch radius. Under normal conditions it will travel at 6 miles per hour with no load and 5 miles per hour with full load.

Joshua Hendy Appoints Turbine Sales Head

Clarence F. Jensky has been appointed to head a newly created turbine sales division of the Joshua Hendy Iron Works, Sunnyvale, Calif., according to a recent announcement by Wallace Johnson, General Sales Manager.

Clarence F. Jensky

Mr. Jensky has been actively engaged in steam-turbine design and engineering for many years, including 11 years with Westinghouse and eight years as chief engineer and general manager of the Murray Iron Works, Burlington, Iowa, manufacturers of steam turbines and boilers. He came to the Hendy organization in July, 1943, and has recently returned from an assignment as advisory turbine engineer in Washington, D. C.

Another member of the new department is Perry J. Collonge who has extensive experience in test, design, and installation with such companies as Tidewater-Associated Oil, Nevada Consolidated Copper, Pacific Gas & Electric, Stone & Webster Engineering, Henry J. Kaiser, and Standard Oil.

Steam turbines built by Hendy are for both marine-propulsion and power purposes, with or without generators.

Export Director for Universal Engineering Corp.

D. H. Young, 120 Broadway, New York 5, N. Y., was appointed Director of Exports for the Universal Engineering Corporation, Cedar Rapids, Iowa.

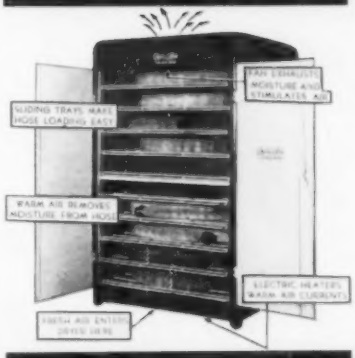
Mr. Young's first step will be the appointment of dealers in countries throughout the world with the exception of Russia, Canada, Mexico, Hawaii, and the Philippines where existing distributors will continue to serve the company.

This company manufactures portable and stationary rock and ore crushing, pulverizing, screening, conveying and storage machinery; gravel washing and screening plants, and Twin-Dryer portable asphalt mixing plants.

CIRCUL-AIR

FIRE HOSE DRYER

- Is easier to use
- Saves drying time
- Reduces hose stretch
- Prevents mildew and rot
- Improves building design
- Air-conditions as it dries


FAN EXHAUSTS MOISTURE AND STIMULATES AIR
LOADING TRAYS MAKE HOSE LOADING EASY
WARM AIR REMOVES MOISTURE FROM HOSE
ELECTRIC HEATERS WARM AIR CURRENTS
FRESH AIR ENTERS DRYER HERE

THE CIRCUL-AIR CORPORATION
6339 East Palmer Avenue
DETROIT 11, MICHIGAN

A BEAUTY!

protect it!

The day your steel storage tank is filled, corrosion starts its destructive work on the inside. By means of the *RUSTOP System of cathodic rust control*, under-water corrosion can now be banished *instantly, completely* and *permanently* . . . from old tanks or new. No draining, sandblasting or painting. No service interruptions . . . no taste. Costs pennies per month to operate. *Guaranteed.* Write for full information. ELECTRO RUST-PROOFING CORP., Dayton 10, Ohio.

RUSTOP ELECTRO RUST-PROOFING CORPORATION

Swing into action for the

PLAN YOUR PLANT DRIVE NOW

Organize now to prevent a letdown on the home front from causing a letdown on the fighting front. Build your plant's payroll campaign around this 8-Point Plan:

1. Appoint Bond Committee
2. Select Team Captains
3. Set Department Quota
4. Instruct Captains
5. Assign Responsibility
6. Provide for Pledge Record
7. Resolicit
8. Advertise the Drive

KEEP YOUR QUOTA "Out Front"

USE 8-POINT PLAN FOR AN OVERBOARD DRIVE IN THE 6th WAR LOAN!

NOV. 20th TO DEC. 16th

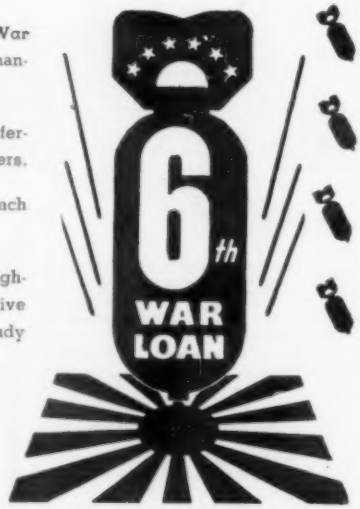
Our fighting men still have a long way to go! But—your plant-wide selling of the 6th can do much to shorten their embattled miles—lessen the price they so willingly pay for victory! Join the coast to coast parade of patriotic firms that are assuring an **"overboard" showing in the 6th** by following through on **every** point in the 8-Point Plan.

Start the ball rolling by appointing a **6th War Loan Bond Committee** representing labor, management and other groups.

Carry on by selecting a **Team Captain**—preferably a returned veteran—for every 10 workers.

Right at the start, establish a **Quota** for each department—and every employee.

Arrange frequent **Meetings of Captains**, highlighting importance of their work—effective sales methods—and need for painstaking study of Treasury Booklet, Getting The Order.



Make definite **Assignments** to those best equipped to arrange music, speeches, rallies, competitive progress boards and meeting schedules.

Issue **Individual Pledge Cards**—made out in the name of each worker and providing for both cash and installment purchase.

Resolicit! This is the secret of "overboard" War Bond subscriptions. Your State Payroll Chairman has a special Resolicitation Plan for you to put into action near the end of the campaign.

Give generously of your **Advertising Space** to drive home the War Bond story.

The Treasury Department acknowledges with appreciation the publication of this message by

THE AMERICAN CITY

★ *This is an official U. S. Treasury advertisement—prepared under auspices of Treasury Department and War Advertising Council* ★

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THE MUNICIPAL INDEX AND ATLAS used in connection with the current advertisements in THE AMERICAN CITY, places local officials in the most favorable position to obtain all types of available equipment and supplies from manufacturers who desire to serve municipal government departments. THE MUNICIPAL INDEX AND ATLAS (664 pages) is published annually by THE AMERICAN CITY MAGAZINE CORPORATION, 470 Fourth Avenue, New York 16, N. Y.

See pp. 19, 20, 22, 24, 26, 121, 123, 125, 127 for catalogs and publications on municipal and civic subjects

For Index to Advertisements see page 154

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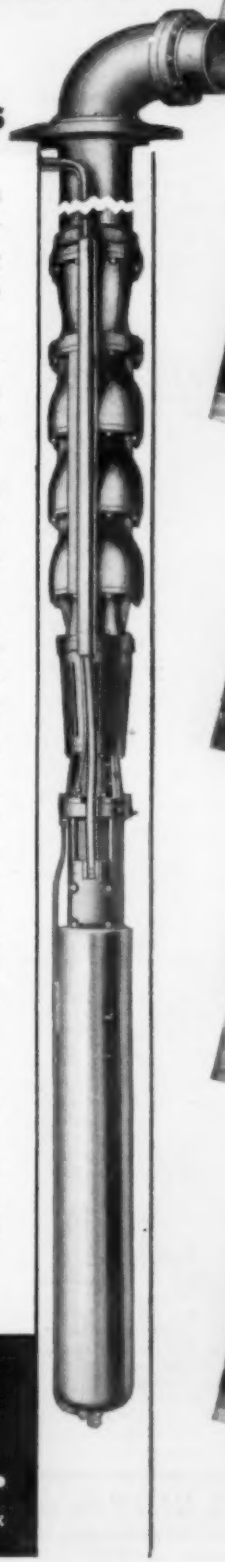

Providing an adequate water supply ofttimes presents a definite problem due to the location in which new sources are found and the difficulty of installing at that point the necessary pumping equipment to make such supply easily available.

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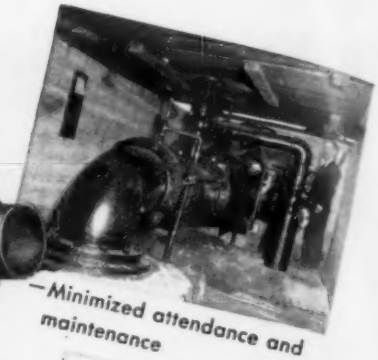
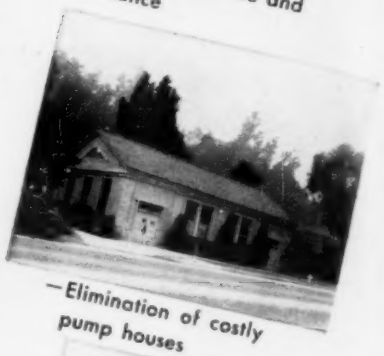


—Minimized attendance and maintenance



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—Adherence to building restrictions

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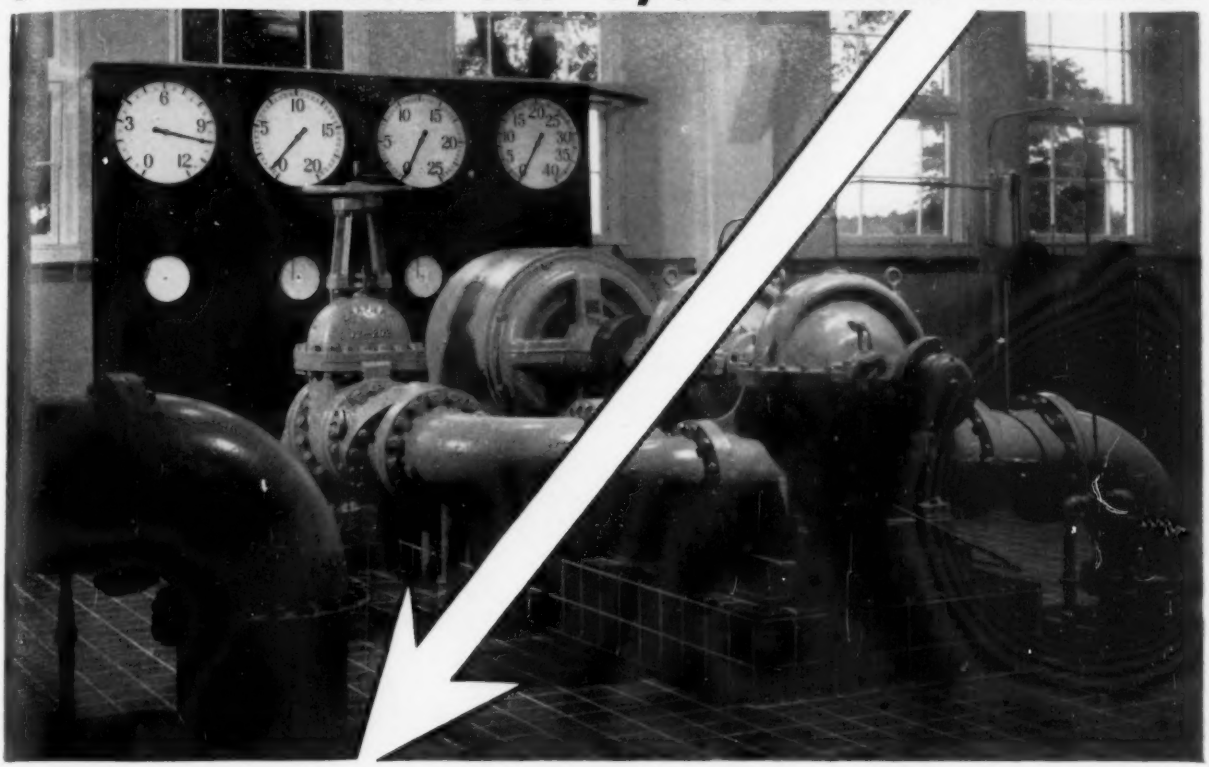

One of the record-breaking Morris Pumps installed in the Wilmington Plant.

MORRIS PUMPS

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3. Quietness of operation.
4. Trim, workmanlike appearance which harmonizes with up-to-date plant design.

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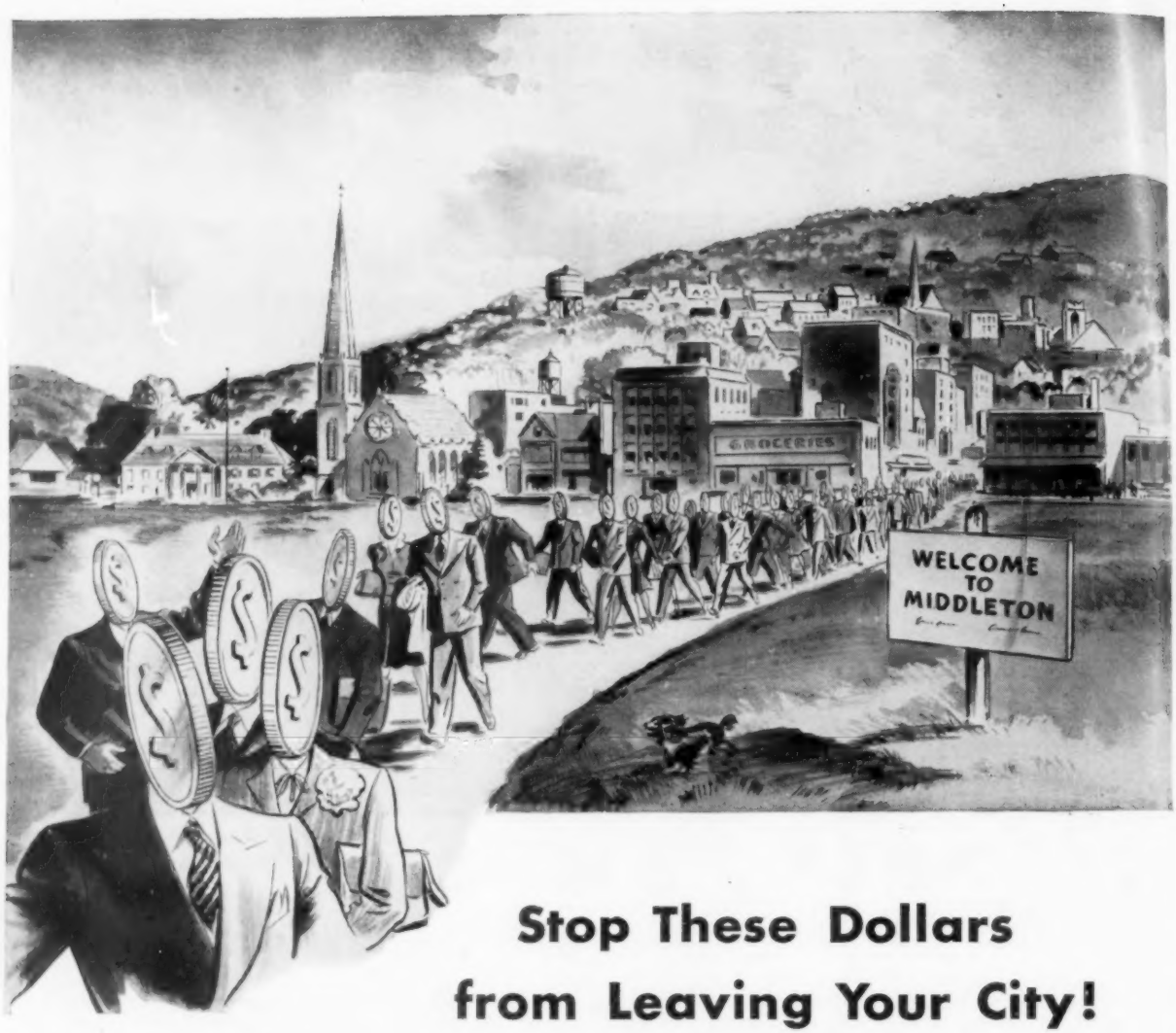

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Diesels

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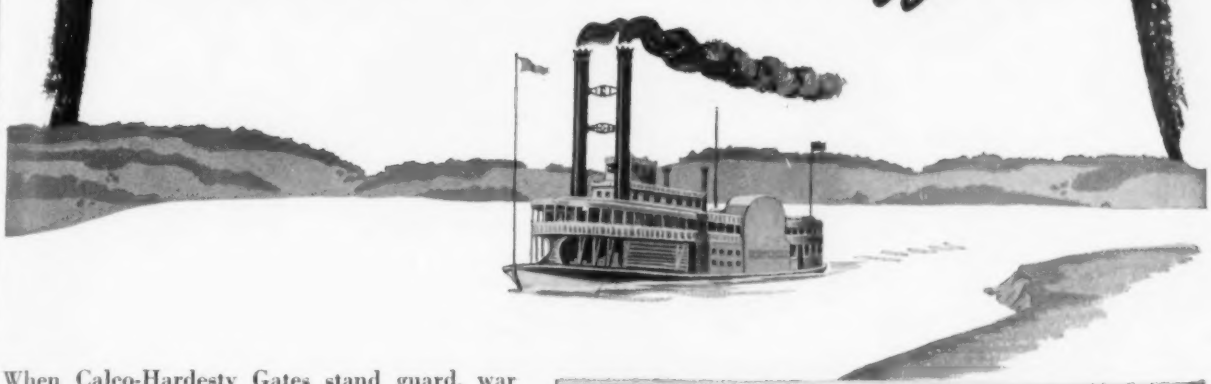

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44 12A

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Constant Flow Equipment

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☆ Special texts have been prepared for administrators on the job. Lesson papers are reviewed by leading authorities in each field. The $35 fee for each course covers the text, individualized lesson instruction, and a certificate upon satisfactory completion of the work. The text alone sells for $7.50 a copy—$60 for a complete set. For use in group training projects, in lots of five or more, the price is $6 a copy.

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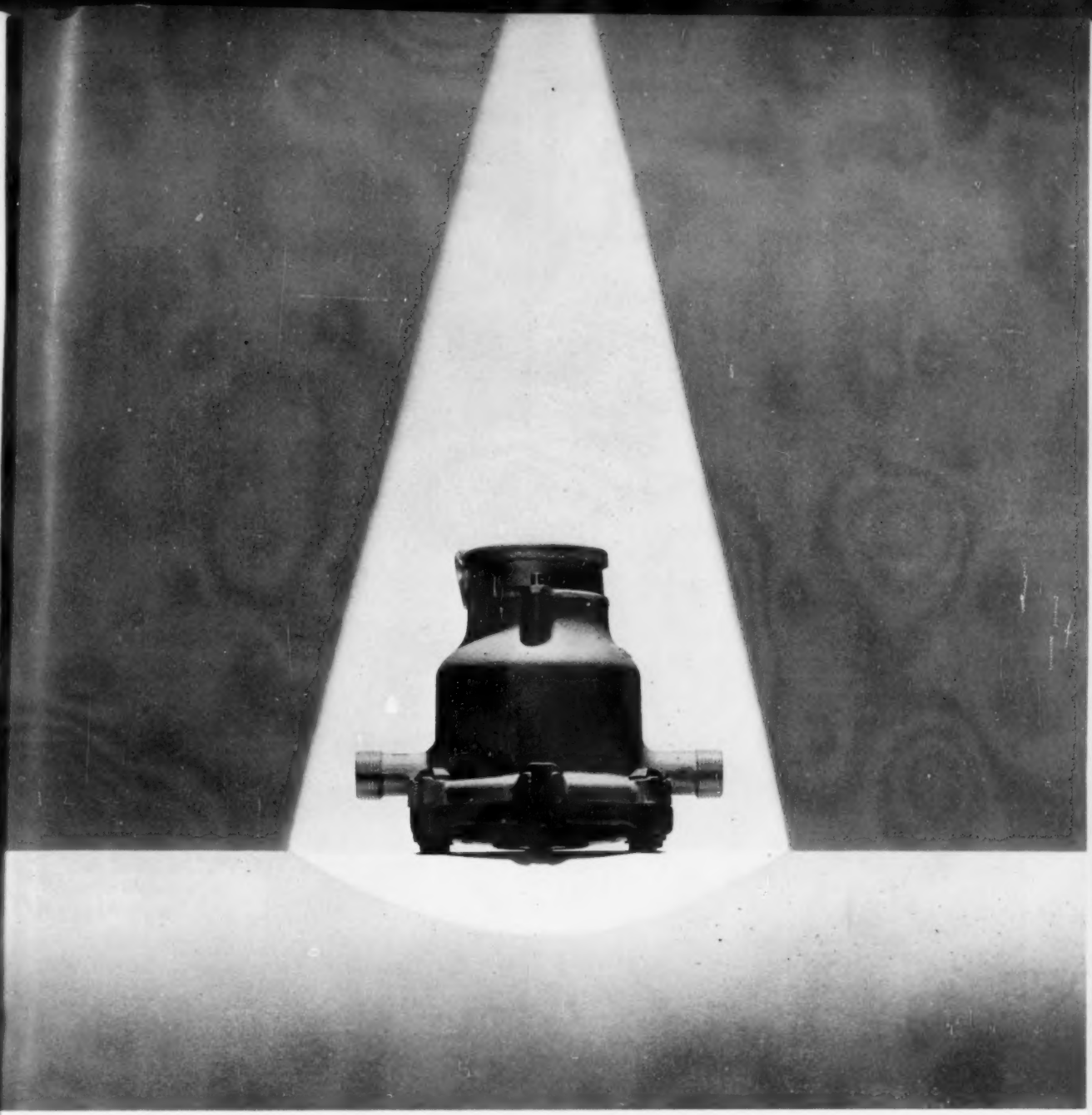
THE INTERNATIONAL CITY MANAGERS' ASSOCIATION
1313 EAST 60TH STREET CHICAGO 37



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have held their preeminent position in the water works field for more than half a century. This is a statement of fact, not wishful thinking. To attain . . . and maintain . . . this position all these years, basic fundamentals were, and still are, necessary.

1. RIGHT DESIGN
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Whenever a metering job calls for the best in performance, dependability, and low maintenance cost, Hersey water meters are invariably selected by water works officials.

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SMITH
INSERTING VALVE

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NO SHUT-DOWNS NECESSARY

Water shut-offs mean Industrial shutdowns, and this in turn impedes the war effort. These shut-offs are not necessary when a valve insertion is made.
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Showing a 24" valve installed horizontally under pressure.

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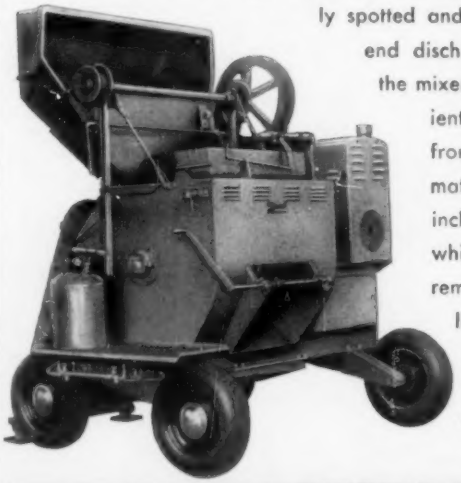

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KWIK-MIX CONCRETE MIXER CO.
PORT WASHINGTON . . . WISCONSIN

DIESEL ENGINES
for Sale

The undersigned will, on or about the hour of 11 A.M. o'clock, E.W.T. on Saturday, the 16th day of December 1944, at its Power Plant in the Town of Louisburg, N. C., offer for sale, at Public Auction, to the highest bidder the following described Diesel Engines Generator Sets:

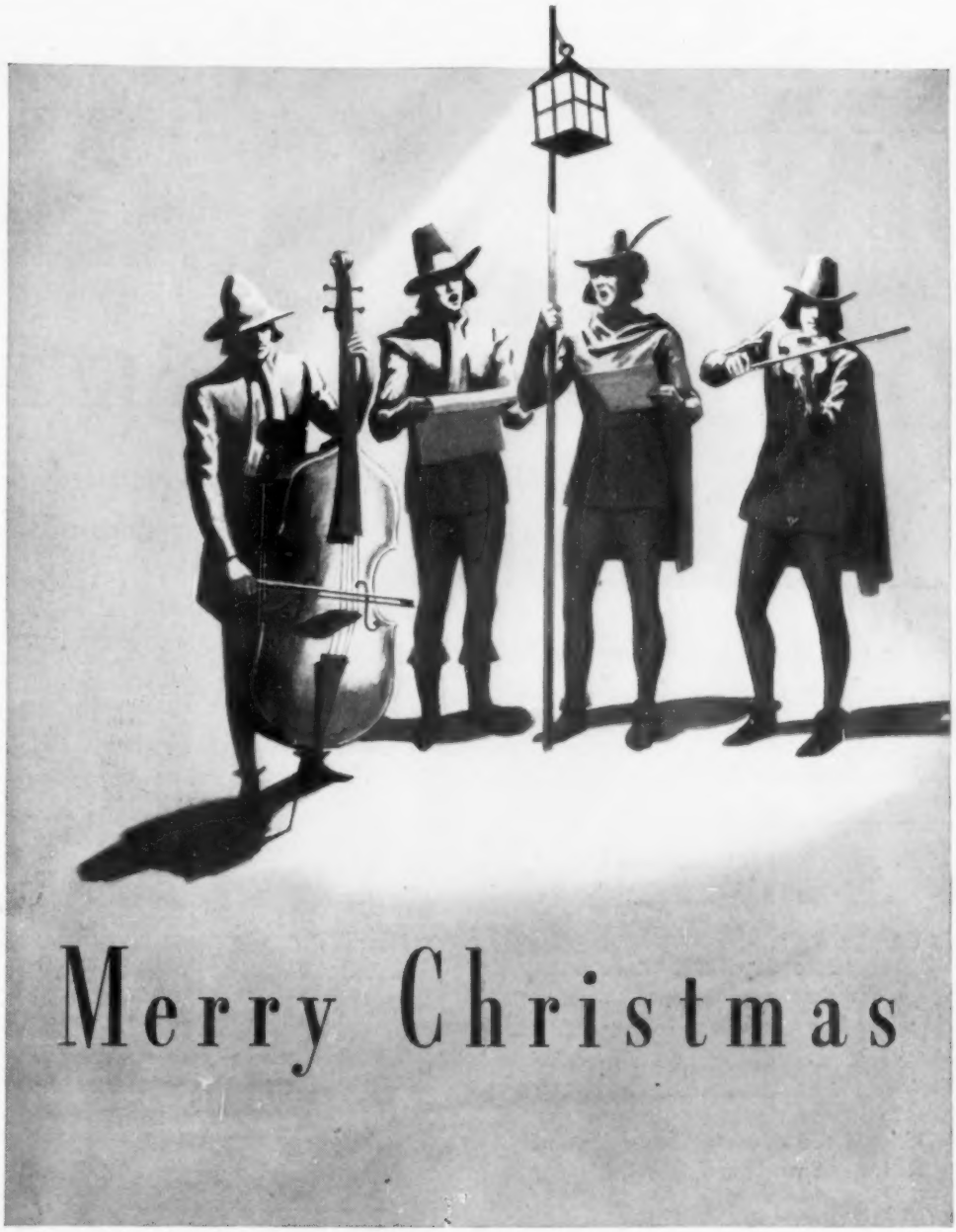
1—375-hp. Fairbanks-Morse Diesel Engine, Model 32-E-14, 300 rpm. 5 cylinders, 75 hp. per cyl. with Woodward Governors and Oil Filter.

1—360-hp. Fairbanks-Morse Diesel Engine, Type Y, Style VA-257 rpm. 6 cylinders, 60-hp. per cyl. with Woodward Governors and Oil Filters.

1—225-hp. Fairbanks-Morse Diesel Engine, Model #32-E-14, 300 rpm. serial #836-836, Woodward Governor and Oil Filter, 3 cylinders, 75-hp. each.

Together with Generators, Exciters and other equipment, a detailed description of which may be obtained at the office of the Town Clerk in Louisburg, N. C. A deposit of at least 25% will be required of the successful bidder on the day of the sale. Any information as to other terms may be obtained from said Town Clerk, and the engines and equipment may be inspected at the Town Power Plant, at any time. The Town reserves the right to reject any or all bids. We can give possession of these engines after Feb. 1, 1945.

Town of Louisburg, N. C.
By W. C. Webb, Mayor



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	Before Cleaning	After Cleaning		Before Cleaning	After Cleaning
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500	1.00	.25	2000	2.90	1.03
1000	4.27	1.13	3000	6.60	2.27
1500	10.53	2.50	4000	11.65	4.00
2000	18.50	4.36	5000	16.73	6.31
4000	79.00	17.50	8000	41.00	16.20
Decrease in Pressure Loss 76%			Decrease in Pressure Loss 64%		

The NATIONAL METHOD

OF WATER MAIN CLEANING GETS

RESULTS!

This is one of many reports in our files showing worthwhile results from cleaning mains by the efficient time-tested NATIONAL METHOD. (For more of the same, write nearest address below:)—

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All hydrants are frost-proof.

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She *must have the finest of fire-fighting equipment.*

Based on her long experience with Mack Fire Apparatus, Baltimore has chosen this new 750-gallon Triple Combination Pumper.

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Mack Manufacturing Corporation, Fire Engine Division
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Mack
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If your community needs additional fire-fighting equipment or replacements, think of Mack. Remember, Mack Fire Apparatus is backed by the greatest engineering resources in the industry.

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East Sidney, Ohio	575,000.00
Pelham, S. C.	275,000.00
Altadena, Calif.	500,000.00
Minot, North Dakota	223,000.00
Ipsilanti, Mich.	55,000.00
Naples, New York	500,000.00
Osborn, Missouri	30,000.00
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Nunda, New York	75,000.00
Buchanan, Virginia	100,000.00
Rego Park, New York	60,000.00
Heppner, Oregon	50,000.00
Dawson Creek, B. C.	350,000.00
Wytheville, Virginia	100,000.00
Glasgow, Kentucky	100,000.00
North Kansas City, Mo.	540,000.00
Yukon, Pennsylvania	250,000.00
Bishopville, Md.	300,000.00
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Delaware Township, N. J.	560,000.00
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Green Island, N. Y.	300,000.00
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Wallington, N. J.	250,000.00
Detroit Lakes, Minn.	50,000.00
Wilmington, Calif.	75,000.00
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Zeeland, Mich.	50,000.00
Corvallis, Ore.	60,000.00
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Marysville, Mich.	325,000.00
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Bingen, Wash.	50,000.00
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Canon City, Okla.	100,000.00
Nenah, Wisc.	100,000.00
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Lucasville, Ohio	820,000.00
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Oxford, Nebr.	75,000.00
Lawrenceville, Ga.	50,000.00
Middlefield, Ohio	108,000.00
Bellefontaine, Ohio	800,000.00
Springfield, Ore.	100,000.00
Ridgefield, Wash.	150,000.00
Pullman, Wash.	200,000.00
Prineville, Ore.	75,000.00
Oxford, Nebr.	75,000.00
Ashland, Ohio	345,000.00
Moorpark, Calif.	1,000,000.00
Petersburg, Alaska	100,000.00
Pelham, S. C.	100,000.00
Dallas, Oregon	100,000.00
Penn Yan, N. Y.	500,000.00
Wellington, Kansas	300,000.00
Neenah, Wisc.	44,000.00
Mangolia, Miss.	75,000.00
Therford Mines, Que.	75,000.00
Frederick, S. C.	25,000.00
Lock Haven, Pa.	26,000.00
Alburnett, Iowa	50,000.00
Belmont, Ont.	250,000.00
Reading, Ohio	362,000.00
North Hollywood, Calif.	50,000.00

(Reprinted by permission from N.F.P.A. publication "Fires in the Second Year of the War".)

Adequate Protection is the Price of Safety

THE FIRE ALARM SYSTEM

as Designed and Manufactured by

GAMEWELL

Provides the means for Eliminating Delay and its ever attendant Fire Waste!

GAMEWELL SYSTEMS

are applicable to every community, irrespective of size.

We invite your inquiry.

THE GAMEWELL COMPANY

Newton Upper Falls, Massachusetts

600 LBS. GUN PRESSURE!

FIGHT FIRES THE MODERN WAY WITH FMC HIGH-PRESSURE FOG

YOU GET ACTION — FAST! *This small town hotel is typical of the type of structures to be found in rural communities. Many are located far away from water supplies — far away from low-pressure pumpers. As the FMC High-Pressure Fog Fire Fighter travels fast and carries its own water supply, it knocks down a fire quickly.*

YOU GET THE REAL "BLASTING" FIRE-KILLING FOG WITH THE FMC HIGH-PRESSURE FOG FIRE FIGHTER

In fighting fire with fog — *you must have high pressure.* And that's what you get with the FMC Fog Fire Fighter.

The FMC High-Pressure Pump easily delivers and maintains *800 lbs. pump pressure*—better than *600 lbs. nozzle pressure.*

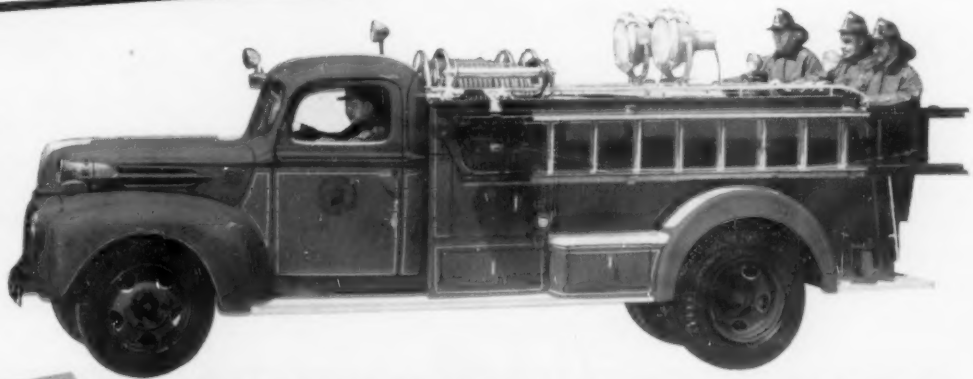
This high pressure gives you a combination of high velocity and finely-atomized fog — just what you need to *cool* and *smother* flame. Every droplet of water is broken up into thousands of tiny particles that can be *"blasted"* into the source of the fire.

One gallon of this finely-atomized fog—properly used—has the fire-quenching possibilities of many times that of low-pressure water.

Investigate! Get the facts about this new and revolutionary fire-fighting technique.

Right now, the Armed Forces are taking most of the production of FMC High-Pressure Fog Fire Fighters. But—you should be ready to modernize the moment civilian needs can be met. Start planning—*now!*

ONLY THE FMC HIGH-PRESSURE FOG FIRE FIGHTER PACKS THE NEEDED PUNCH TO PRODUCE AND MAINTAIN 800 LBS. PUMP PRESSURE — 600 LBS. GUN PRESSURE. INVESTIGATE! THERE'S NOTHING ELSE LIKE IT!



STANDARD FMC FOG FIRE FIGHTER. *A self-contained fire-fighting unit. Carries its own water supply and complete fire-fighting equipment. Provides two guns of 30 gallons each at 600 lbs. nozzle pressure. Tested and proved at hundreds of town, rural and airport fires.*

FMC *original* HIGH-PRESSURE FOG FIRE FIGHTER

CAN BE MOUNTED ON MOST STANDARD TRUCK CHASSIS

FOOD MACHINERY CORPORATION

JOHN BEAN MFG. CO., 701 HAZEL ST., LANSING 4, MICH. • BEAN-CUTLER DIV., 401 JULIAN ST., SAN JOSE, CALIF.

BUILDERS OF BEAN HIGH-PRESSURE PUMPS FOR OVER 60 YEARS

CAST IRON PIPE LAID IN LONDON BEFORE THE BATTLE OF WATERLOO IS STILL IN SERVICE.

134 YEARS OF CONTINUOUS SERVICE IN LONDON

BETWEEN 1810 and 1812—before Wellington defeated Napoleon at Waterloo—the cast iron water main, shown at right, was installed in London, England. It is still in service (unless recently bombed out). For when it was uncovered for inspection, and photographed, a few years ago, engineers pronounced it "as tight as when new." Before the war, 200-year-old cast iron water mains were known to be in service throughout Europe.

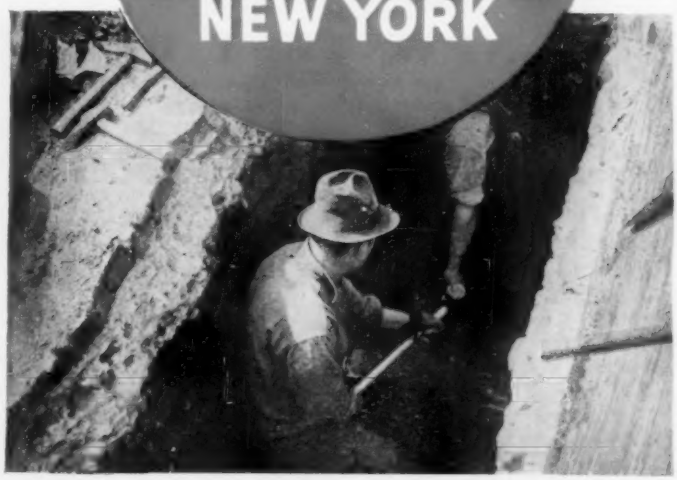
So when you specify cast iron pipe for current or postwar construction, you know one thing for certain—it will serve for centuries, in its original location or elsewhere. If the line has to be relocated or abandoned or replaced by larger diameters, you also know that cast iron pipe can be taken up and relaid, or salvaged for cash. You may also know that cast iron pipe costs far less to maintain than any other pipe used for water distribution mains, as proved by a survey conducted by a prominent engineering publication.

[Section of a cast iron water main laid in London between 1810 and 1812 and still functioning (at last report) after 134 years of continuous service.]

CAST IRON PIPE

LINCOLN WAS ELECTED CAPTAIN BY HIS COMPANY IN THE BLACK HAWK WAR—113 YEARS AGO.

113 YEARS OF CONTINUOUS SERVICE IN NEW YORK



[Section of New York's oldest cast iron water main, installed 113 years ago in "Greenwich Village" and still in service.]

IN 1831, when Abraham Lincoln enlisted in the Black Hawk Indian War, the Common Council of the City of New York authorized the installation of a cast iron water main in what is now "Greenwich Village." It is still in service.

Today, more than a century later, the methods by which cast iron pipe is produced have undergone revolutionary changes. Metallurgical, laboratory and production controls have been developed. A recent and fundamental forward step is the new Law of Design for cast iron pipe in underground service, approved by the American Standards Association and sponsored by official organizations representing pipe users.

Thus, you can take it for granted that the cast iron pipe made today by our members, has not only *long life* as proved by generations of service the world over, but is more economical than ever.

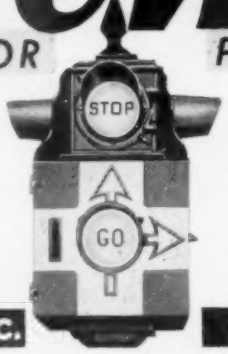
CAST IRON

Cast Iron Pipe Research Association
Thomas F. Wolfe, Engineer, Peoples Gas Building, Chicago 3

SERVES FOR CENTURIES

AROWAY

TRAFFIC SIGNALS FOR POST-WAR DEMANDS



Aroway will lead the way in post-war Traffic Signals because they are the simplest, clearest and most practical to avoid traffic snarls and costly accidents. The great hazards of traffic demand more than the old-fashioned Stop and Go Signals. The modern Aroway Signal is all-encompassing. It eliminates auxiliary signs like No Left Turn; No U Turn; Straight Ahead, etc. Aroway Signals are complete at one focal point: *at the Stop and Go lights* and even those who cannot read or discern color will see the open and closed traffic lanes at a glance.

The demand for Aroway Traffic Signals for post-war demand will be tremendous. So get preliminary data now. Write to:

AROWAY TRAFFIC SIGNALS, INC. **JOHNSON CITY, TENNESSEE**

CONNERY'S HEATING KETTLE

Style B-2

reduces street maintenance costs by heating tar and asphalt with SPEED AND SAFETY.

This oil burning kettle is equipped with steel roller-bearing wheels. Sizes: 30, 80, 110 and 165 gallons.

Write for catalog showing our full line of tar and asphalt heating kettles, spraying attachments, pouring pots, etc.

Connery Construction Co. 2nd & Luzerne Streets, Philadelphia 40, Pa.

the story of U. S. war construction in foreign lands

Eyewitness accounts of the great engineering works needed in modern war and achieved in the face of wartime obstacles and in battle-ridden locales.

BULLDOZERS COME FIRST

Just Out!

By Waldo G. Bowman, Harold W. Richardson, Nathan A. Bowers, Edward J. Cleary, Archie N. Carter.

—Members of the editorial staff of Engineering News-Record, who as accredited war correspondents traveled over 100,000 miles to view the war construction operations graphically reported in this book. ***278 pages, illustrated, $2.75***

The prosaic bulldozer in a new role—as spectacular a factor in the war as the tank, or the bomber, preceding the fighting forces where possible, and accompanying them, even in the first wave of attack, when necessary.

• Some three dozen stories are given, covering the accomplishments of Army Engineers, Navy Seabees, and hardy civilian engineers and contractors, told in the words of skilled technical reporters.

Nearly every theater of the war is represented in varied stories that show the bulldozer going ashore with early waves of landing troops, repairing airfields, clearing up wrecked ports, building desert, mountain, and jungle roads, establishing depots and fortifications, even fighting if need be, in a specialized type of reporting that helps to explain why this has been called an "engineer's war."

Send This McGraw-Hill Coupon

McGraw-Hill Book Co.,
330 W. 42nd St., N. Y., 18

Send me Bowman, Richardson, Bowers, Cleary and Carter's Bulldozers Come First, for 10 days' examination on approval. In 10 days I will send $2.75, plus few cents postage, or return book postpaid. (Postage paid on cash orders.)

Name .....
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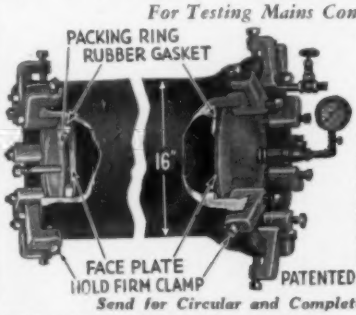
Position .....
Company AC-12-44
(Books sent on approval in the U. S. only.)

"HOLD FIRM"

A NEW TEST PLUG

For Testing Mains Conveying



WATER GAS
OIL AIR

For testing cast iron, steel, transite, soil and concrete pipe lines, without the necessity of valves; test pipe as you lay them; eliminate open trench and hazards; special for testing reclaimed pipe, valves and fittings. Installed by any unskilled laborer; withstands 300 lbs. hydrostatic pressure, light in weight; same clamps fit many sizes of pipe. Made in all sizes. Used by the City of Chicago, contractors and municipalities. PATENTED

Send for Circular and Complete Information

TEST PLUG MFG. CO. (not Inc.) SKOKIE, ILL.

South Bend GUTTER-SNIPE

PICK-UP STREET SWEEPERS

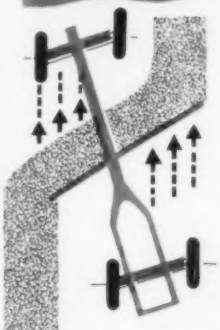
STREET FLUSHERS
STREET SPRINKLERS
BITUMINOUS DISTRIBUTORS
BITUMINOUS MAINTENANCE UNITS

Since 1908

MUNICIPAL SUPPLY COMPANY - SOUTH BEND 23, INDIANA

"CONTROLLED TRACTION"

. . . moves more material . . . farther and faster



This "99-M" is using "Controlled Traction" to move the material up the slope; an operation always difficult, and frequently impossible, for ordinary Motor Graders.

This "99-M" is using "Controlled Traction" to move a tremendous windrow of "oil mix" along the entire 13 ft. blade, and miss the windrow with all wheels.

• Getting down to fundamentals, the main job of any self-propelled grader is *to move a satisfactory amount of material with the blade, and at the same time keep moving in the desired direction.*

CONTROLLED TRACTION involves steering the rear wheels, and angling the frame, until the combination of rear wheels pushing behind the toe of the blade, front wheels pulling ahead of the heel of the blade, and blade practically at right angles to the frame in its angled position, *balances the load,* as shown in the diagram, and makes it easy for the "99-M" to move straight ahead with a blade load that would either stall an ordinary Motor Grader, or cause it to slide sideways.

AUSTIN-WESTERN COMPANY
AURORA, ILLINOIS, U. S. A.

BUILDERS OF ROAD MACHINERY

Austin Western

SINCE 1859

BUY MORE WAR BONDS

AN IMPORTANT PACKAGE TO WRAP-UP NOW!

Getting many of the boys back home for Christmas this year is out of the question, but it won't be long before demobilization gets underway. Our "Welcome Home" will be hollow indeed if we have no jobs to offer. That new construction and replacement work that has been accumulating—have you got it all wrapped-up ready to let the contracts? Your BLUEPRINT NOW committee again urges you to settle the financing arrangements, the plans, and all the other details.

MATHEWS HYDRANTS

400 CHESTNUT STREET, PHILADELPHIA, PA.

ESTABLISHED IN 1803

Made by R.D. WOOD Company

MANUFACTURERS OF SAND SPUN PIPE (CENTRIFUGALLY CAST IN SAND MOLDS) AND R. D. WOOD GATE VALVES

Attention!

WATER WORKS OFFICIALS

The letter reproduced herewith tells its own story—Mathieson's new Chlorine Dioxide water-treatment technique is no longer in the experimental stage. When Mathieson Sodium Chlorite—from which Chlorine Dioxide is generated—is again available in quantity after the war, many other communities will be able to enjoy the advantages of this amazing technique for removing objectionable tastes and odors. Full information will be sent upon request.

CITY OF NIAGARA FALLS
NEW YORK

DATE October 20, 194-

FROM H. W. Clark, City Manager

TO Mr. George W. Dolan, President
The Mathieson Alkali Works, Inc.
60 East 42nd Street
New York, N. Y.

Dear Mr. Dolan:

On behalf of the administration of the City of Niagara Falls, New York, I am taking this means of expressing our satisfaction over the present quality of the municipal water supply.

The chlorine dioxide treatment developed by the technical staff of your organization has been applied to the entire pumpage here for the past five months. During this time the elimination of objectionable tastes and odor from the water supply has been maintained at a high level of performance.

It is my belief that your company has made an outstanding contribution to water works practice.

Very truly yours,

H. W. Clark

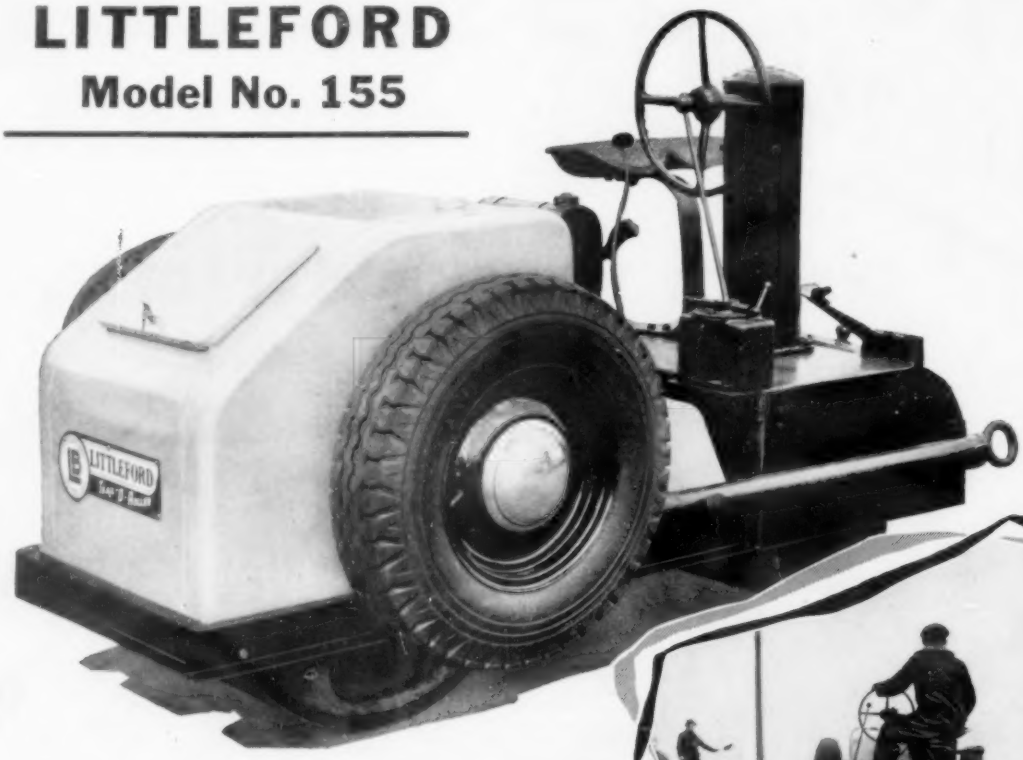
HWC:S-N

H. W. Clark, City Manager

Mathieson
CHLORINE DIOXIDE

THE MATHIESON ALKALI WORKS (INC.) 60 EAST 42nd STREET, NEW YORK 17, N. Y.
SODIUM CHLORITE PRODUCTS . . . CAUSTIC SODA . . . SODA ASH . . . BICARBONATE OF SODA . . . LIQUID CHLORINE . . . BLEACHING POWDER . . . H T H PRODUCTS
AMMONIA, ANHYDROUS & AQUA . . . FUSED ALKALI PRODUCTS . . . SYNTHETIC SALT CAKE . . . DRY ICE . . . CARBONIC GAS . . . SODIUM METHYLATE

LITTLEFORD
Model No. 155



THE PORTABLE
TRAIL-O-ROLLER

CHANGES FROM TRAILING TO ROLLING POSITION IN 2 MINUTES TIME

When a Roller is needed on the job, no delays are necessary when a Trail-O-Roller is used. It can be taken along with the maintenance or construction crew hooked right behind a truck. The Trail-O-Roller is small, compact, yet gives as much compaction per inch of roller width as a 5-ton tandem roller. When it's ready to roll a road, highway, airport runway, parking area, etc., it can be changed from trailing to rolling position, or vice versa, by a hydraulic lift in 2 minutes' time.

For better roads, use the best equipment. Make plans to own a Littleford Trail-O-Roller.

BLACK TOP ROAD MAINTENANCE EQUIPMENT — LB — SINCE - 1900

LITTLEFORD

LITTLEFORD BROS., INC.
500 E. Pearl St. Cincinnati 2, Ohio

HAVE WATER WHERE YOU NEED IT

H-10400

With the MUELLER Sprinkling and Flushing Hydrant you can have water connections anywhere you need them. Because the lid is flush with the ground, it can be installed in sidewalks, loading platforms, floors, warehouses, construction jobs, golf courses, airports and parks — right where it is wanted . . . The MUELLER Flushing Hydrant is well made throughout. The compression stop and drain is high quality red brass. The curb box is so designed as to catch all dripping and waste water, thus eliminating the puddle nuisance common to ordinary hydrants. Will not freeze up . . . Save valuable space with this concealed hose connection. Have water where you need it.

MUELLER CO.
DECATUR, ILL.
FOUNDED 1857

CHEMICAL FEEDERS

Accurate, dependable solution feeders for water treatment chemicals. Constant rate and flow proportional, electric, gas engine and hydraulic drive, manual and automatic adjustment, low and high pressure %Proportioneers%.

Write for information.

% PROPORTIONEERS, INC. %
99 Codding St., Providence 1, R. I.

You'll get more of tomorrow's highway contracts . . . if your pumping costs are the lowest
CARVER Certified PUMPS
CARVER PUMP CO.
MUSCATINE, IOWA

Low Cost Water— **by CARVER**

Carver Certified Pumps can save you many hours and dollars on your pumping jobs. Lifetime tungsten carbide seal, special long life impeller and removable liner, and trouble-proof design enable Carver pumps to handle water filled with mud, grit or sand and there will be less time out for maintenance. Low first cost, fast priming, efficient, non-clogging action, mean that Carver pumps get to work faster, stay on the job longer, and, most important of all, pump more water at less cost per gallon.

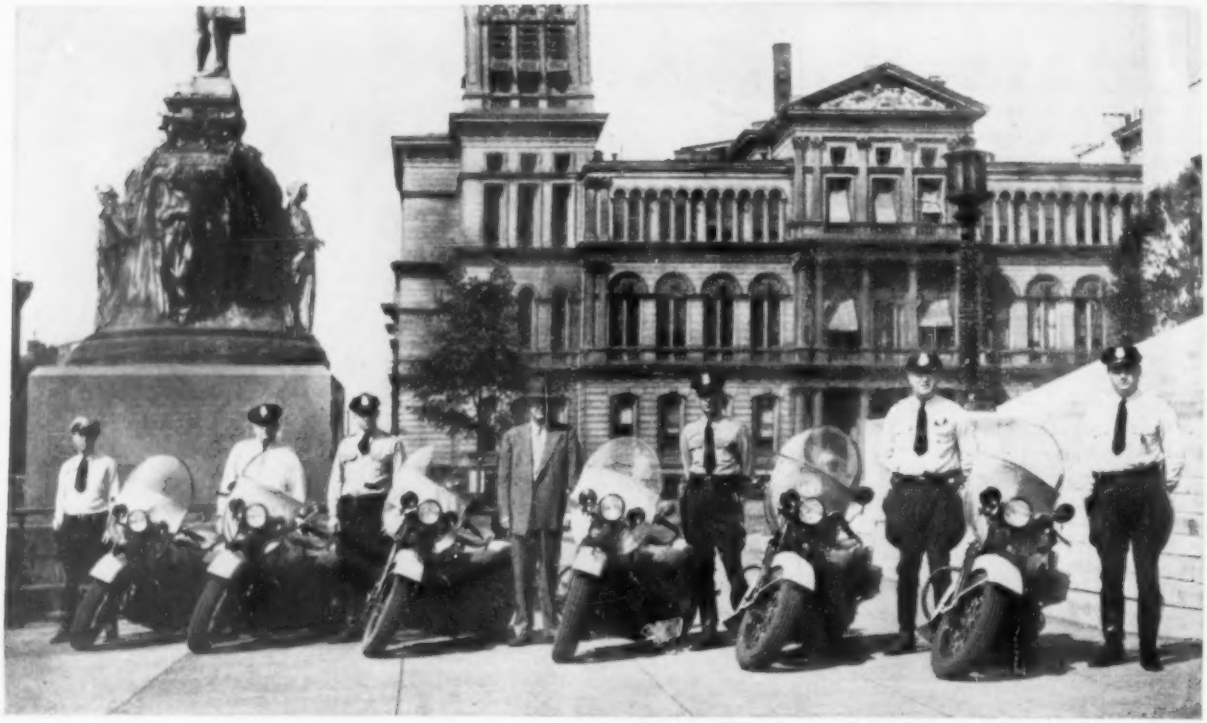
Every Carver pump carries a "Certified" tag—proof that it fully meets our high standards for performance on the job—your assurance of top performance on your toughest jobs.

For complete information, see your nearby Carver distributor or write direct.

THE CARVER PUMP CO.
Muscatine, Iowa

CARVER CENTRIFUGAL Certified PUMPS

HARLEY-DAVIDSONS EXCLUSIVELY
FOR JEFFERSON COUNTY'S POLICE



CHIEF IRA LEE CLARK (center) can well be proud of his Jefferson County Motorcycle Police with headquarters at Louisville, Kentucky. Like many other American communities, Jefferson County uses Harley-Davidsons *exclusively*. Thus equipped, its police can handle the many phases of traffic control and law enforcement work more quickly and thoroughly than by any other method. The fast, ruggedly built, dependable Harley-Davidsons provide unequalled performance to make police manpower more effective through —

• Covering more territory • Quick concentration at scenes of trouble • Greater flexibility of action • Better protection of vital war industries • Closer contact with the public • Evidence of uniformed authority.

Plan now for the future of your department—built on the secure foundation of superior performance with Harley-Davidson Police Motorcycles.

HARLEY-DAVIDSON MOTOR CO., Milwaukee 1, Wisconsin

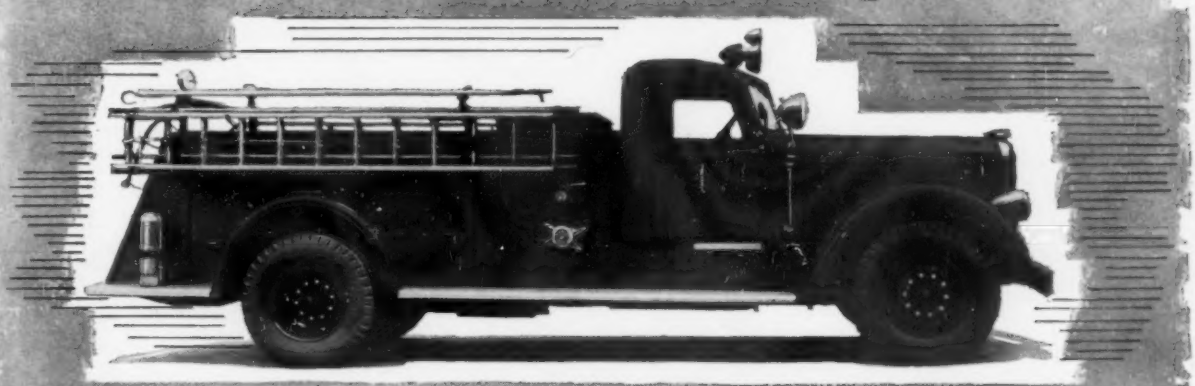
Harley-Davidson Motorcycles are available now for vital police needs. See your dealer.

HARLEY-DAVIDSON

Police Motorcycles

★ ON AMERICA'S FRONT LINES OF ACTION ★

NUMBER 10 for WASHINGTON, D.C.



QUICK FACTS

About Ward LaFrance Model 85T, illustrated, as modified for the Washington, D. C. Fire Department:

Overall Length: 292 inches
Weight (empty): 13,675 lbs.
Cylinders: 6
Wheelbase: 182 inches
Turning Radius: 33 ft.
Horsepower: 200
Pump: 750 G. P. M., 2-Stage Centrifugal
Booster Tank: 75 gals.
Hose Capacity: 1000 ft. 2½ in.
Ladders: 20 ft. extension
12 ft. roof

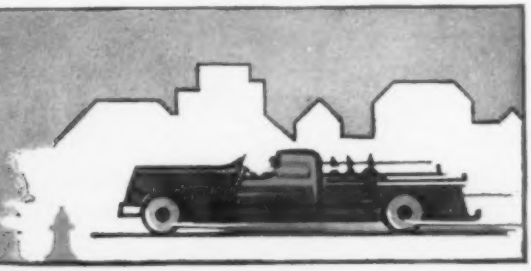
This Triple Combination Pumper recently delivered to Washington, D. C. is the tenth of thirteen 750 G. P. M. and 1000 G. P. M. Ward LaFrance models ordered.

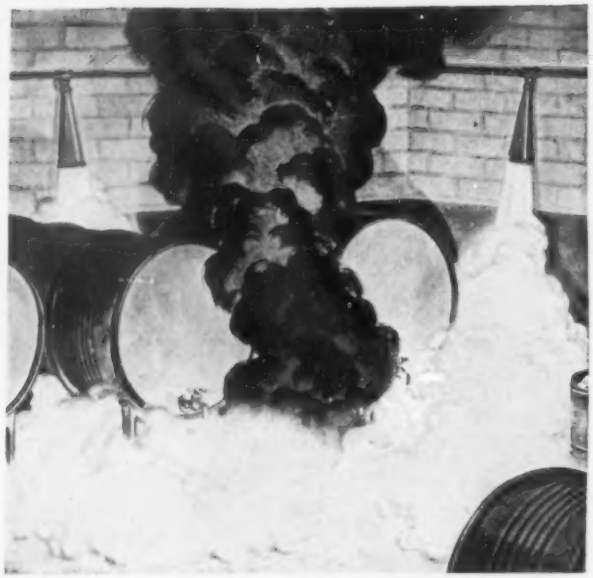
Larger cities such as Washington choose Ward La France equipment on the basis of our ability to meet their engineers' specifications to the letter, and do so with true economy. Smaller communities by the score are also picking Ward LaFrance apparatus. The reason: wide range of basic models, authoritative engineering assistance, plus a reputation for unbeatable stamina and performance.

WARD LAFRANCE

TRUCK DIVISION

GREAT AMERICAN INDUSTRIES, INC. • ELMIRA, NEW YORK





BEFORE TOUGH FIRES GET TOO TOUGH— *blast them out with Kidde*

In fighting the tough fires — the fast-moving ones that break out in flammable liquids (Class B); and the hard-to-get-at types that start in electrical installations (Class C) — you've got to smother them fast or they'll spread beyond control in a few minutes.

Ordinary water-type extinguishers can't control these tough fires. But built-in Kidde systems, employing carbon dioxide, will smother them in twenty seconds. That is why Underwriters' and Factory Mutual Laboratories approve Kidde for fighting both these types of fire.

Some of the Kidde built-in systems are so designed that the fire can be automatically isolated, and the room quickly filled with flame-suffocating carbon dioxide. This gas — being dry, inert, odorless and non-toxic — leaves no after-fire mess to be cleaned up; cannot damage any materials; and does not contaminate or otherwise spoil costly processes. In brief, Kidde is one of the speediest, cleanest and most effective fire extinguishers in use today.

So, check this list now. Does even *one* of these hazard areas exist in your plant? If it does, write Kidde today. Ask to have a Kidde representative call upon you. He'll be glad to share his fire-prevention know-how with you.

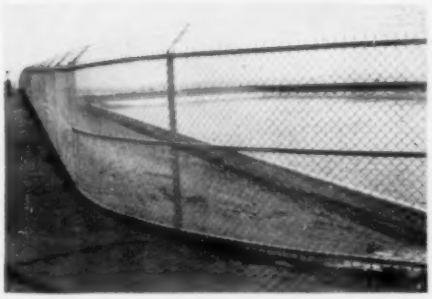
K Kidde

KIDDE	Activated Carbon	Storage Rooms
KILLS	Ovens	Drain Boards
TOUGH	Motors	Transformers
FIRES	Record Vaults	Dip Tanks

Walter Kidde & Company
140 Cedar Street, New York 6, N. Y.

Plan now to fence

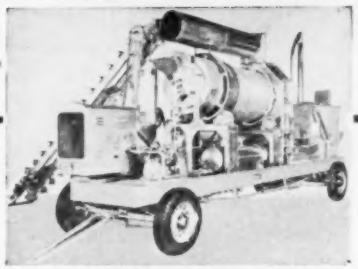
MUNICIPAL PROPERTY



It's not too early to plan postwar fencing. As soon as war needs are met, materials may be released for civilian use. Some Chain Link Wire Fence is available now for essential needs. So, tell us of your plans. We shall be glad to offer suggestions and furnish estimates. There's no cost or obligation.

THE STEWART IRON WORKS CO., Inc.
1121 Stewart Block Cincinnati 1, Ohio

Stewart IRON and WIRE FENCES



PORTABLE ASPHALT PLANTS

Write for Catalog

Elkhart White Mfg. Co. Indiana

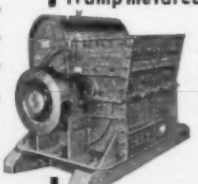
GRUENDLER CRAFTSMANSHIP
Serving Industry over 50 Years

A remarkable Shredder for your Sewage Plant
Showing the way to Sanitary Engineers in many U. S. cities.

Write for DATA and Illustrated BULLETIN No. 0491 on Garbage and Sewage Disposal Equipment

GRUENDLER
CRUSHER and PULVERIZER CO.
2915-17 North Market St., ST. LOUIS (6), MO.

Non-Clog SHREDDER with Tramp metal catcher



Types & Sizes for Your Needs

Proved features . . .

enables complete disintegration of Rag Stock, Garbage, Floatables and Fibrous materials without choke down, so as to pass screen bar—Designed with Spray Flushers, Tramp Iron Catchers and Non Clog Grate Bars.

CHAPMAN *Standard* SLUICE GATES

IN A WIDE RANGE OF TYPES AND SIZES

Chapman's standard line of Sluice Gates contains such a wide range of types and sizes that the cost and delay of specially built equipment can be eliminated in average cases. Further savings can be effected in installation, because parts are interchangeable and stems and couplings do not have to be match-marked.

Available for all types of operating control —manual, hydraulic cylinder or motor unit.

For complete specifications on various types, send for The Chapman Sluice Gate Handbook.

The CHAPMAN Valve Mfg. Co.
Indian Orchard, Massachusetts

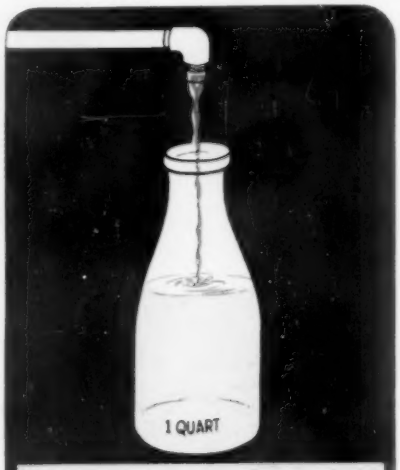
In your Meter Testing

IS YOUR 1/32" ORIFICE DELIVERING *over a gallon a minute?*

It will pay you to check it. Reports from a number of Water Departments show that their low flow test rate, determined by a 1/32" orifice, instead of giving approximately ¼ gallon per minute, actually delivered in excess of 1 gallon per minute.

After the installation of a Neptune Rate-of-Flow Indicator to get accurate regulation of the flow, it was found that repaired water meters which had passed previous tests, would not even move on ¼ gallon per minute.

Remember—13% of all water passing through 5/8" meters is used at about this ¼ gallon per minute rate. To obtain maximum revenue, they should register at least 90%.



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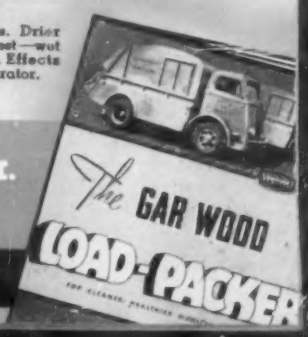

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1. Cox — Jl. A.W.W.A., 31:1489. (1939)
2. Faber — Jl. A.W.W.A., 31:1599. (1939)
3. Weber, Bender, Levine — Jl. A.W.W.A., 32:1904. (1940)
4. Griffin, Chamberlain — A.P.H.A. Paper (Oct. 1944)

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